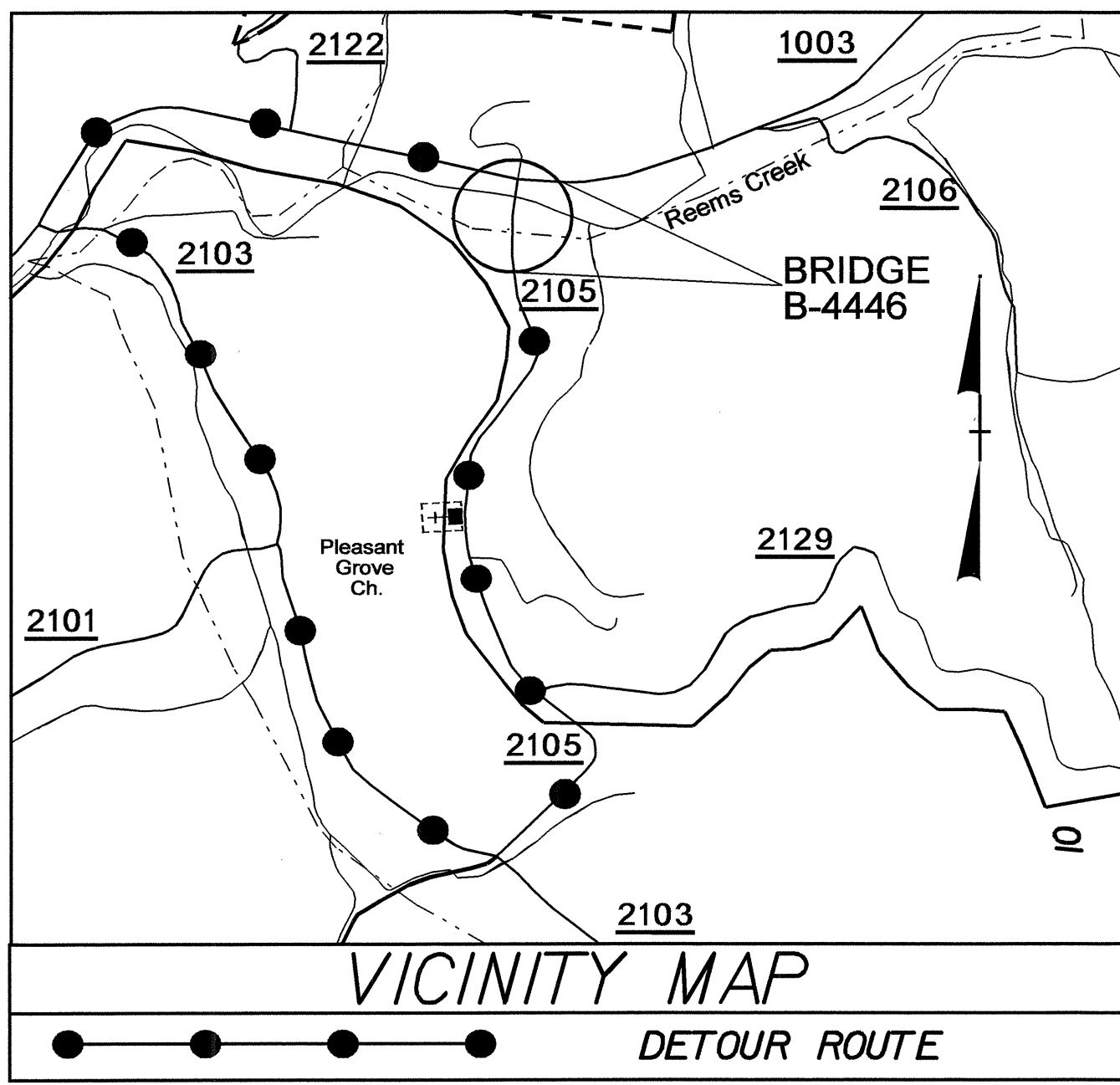


CONTRACT: C202269 TIP PROJECT: B-4446

STRUCTURE

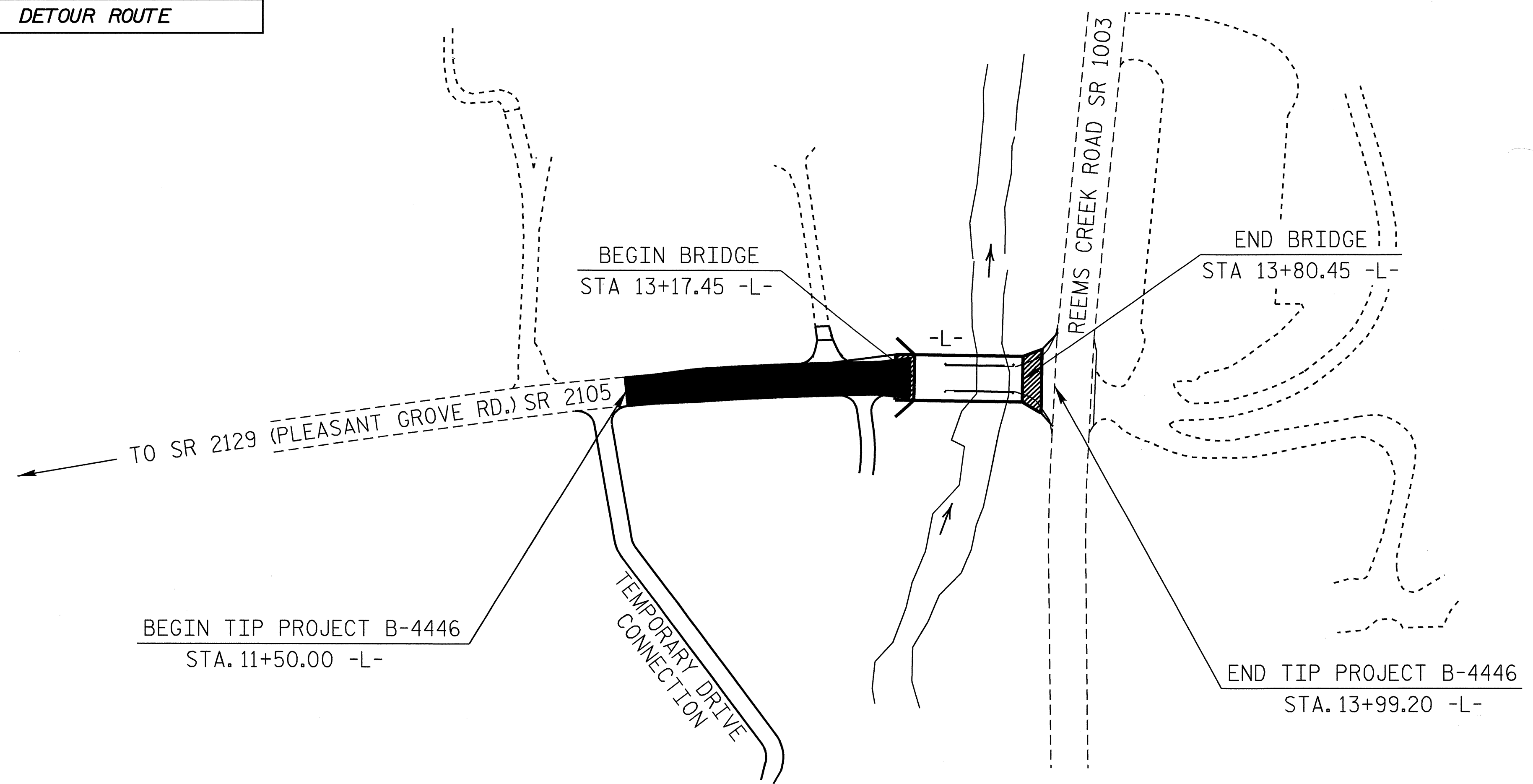


STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

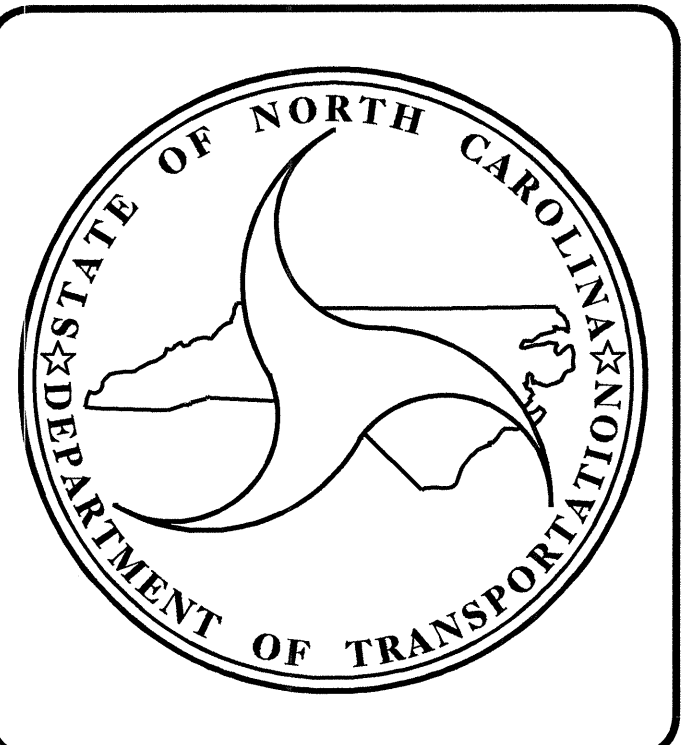
BUNCOMBE COUNTY

LOCATION: BRIDGE NO. 227 OVER REEMS CREEK
ON SR 2105

TYPE OF WORK: GRADING, DRAINAGE, PAVING,
AND STRUCTURES



STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-4446		
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
33703.1.1	BRZ-2105(1)	P. E.	
33703.2.1	BRZ-2105(1)	R/W, UTIL	
33703.3.1	BRZ-2105(1)	CONST.	



DESIGN DATA

ADT 2007 =	592
ADT 2030 =	900
DHV =	9 %
D =	60 %
T =	6 % *
V =	30 MPH**
FUNC. CLASS =	LOCAL
* TTST 1	DUAL 5

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT B-4446 =	0.035 MILE
LENGTH STRUCTURE TIP PROJECT B-4446 =	0.012 MILE
TOTAL LENGTH TIP PROJECT B-4446 =	0.047 MILE

Prepared in the Office of:

DIVISION OF HIGHWAYS

2006 STANDARD SPECIFICATIONS

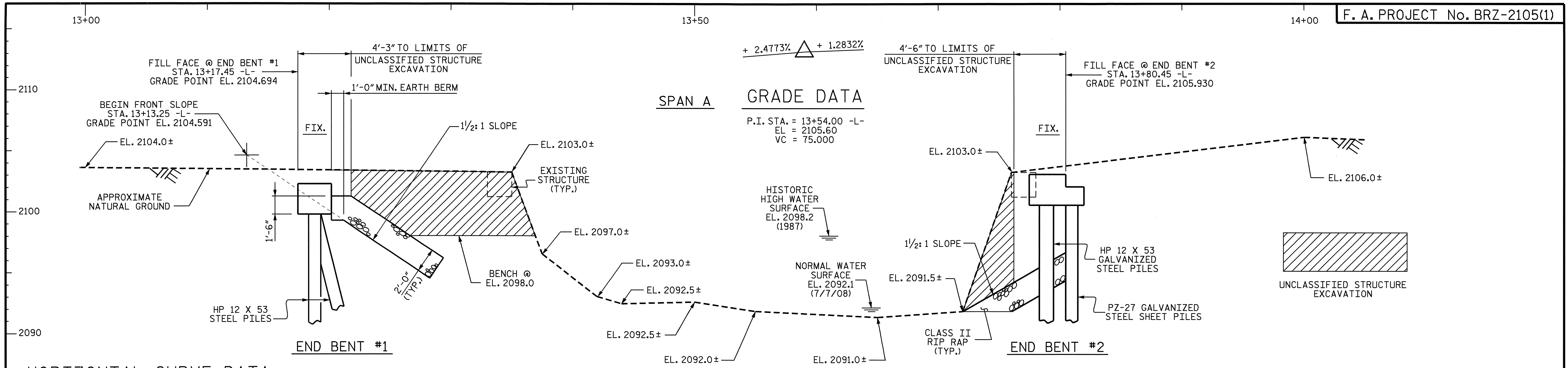
LETTING DATE :	QUANG H. NGUYEN, P.E. PROJECT ENGINEER
JANUARY 19, 2010	JOHN R. DUGGINS, P.E. PROJECT DESIGN ENGINEER

STRUCTURE DESIGN UNIT
1000 BIRCH RIDGE DR.
RALEIGH, N.C. 27610

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

STATE DESIGN ENGINEER _____ P.E.
DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

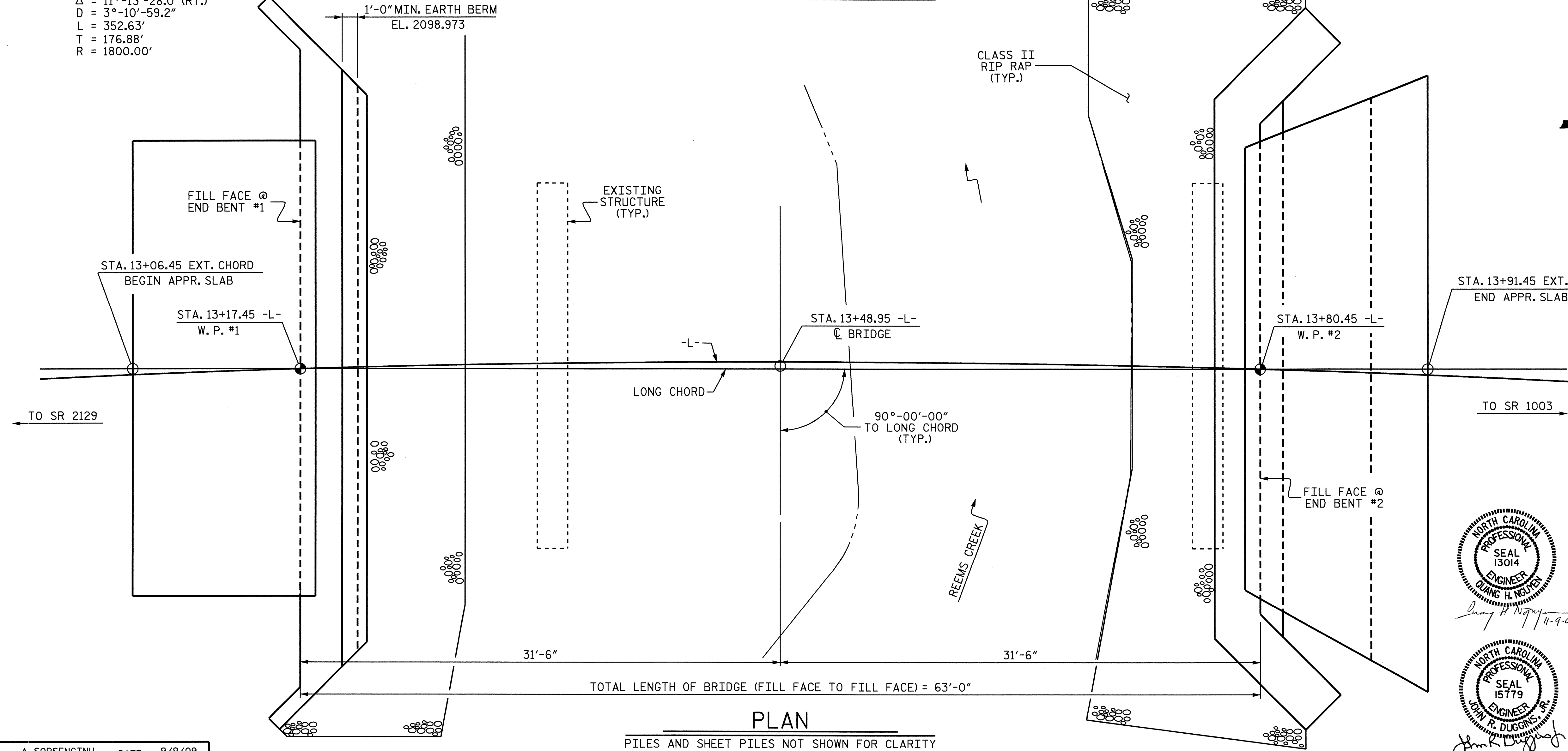
APPROVED _____
DIVISION ADMINISTRATOR DATE _____



HORIZONTAL CURVE DATA

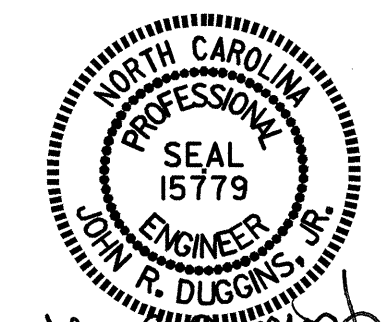
P.I. STA. = 12+27.51 -L-
 Δ = 11°-13'-28.0" (RT.)
 D = 3°-10'-59.2"
 L = 352.63'
 T = 176.88'
 R = 1800.00'

SECTION ALONG -L-



DRAWN BY : A. SORSENGINH DATE : 9/9/09
 CHECKED BY : J.R. DUGGINS DATE : 9/09

05-NOV-2009 14:30
 r:\structures\b4446\asorsenginh\mforstation\b4446_sd.gd.dgn
 asorsenginh



PROJECT NO. B-4446
 BUNCOMBE COUNTY
 STATION: 13+48.95 -L-
 SHEET 1 OF 3 REPLACES BRIDGE #227

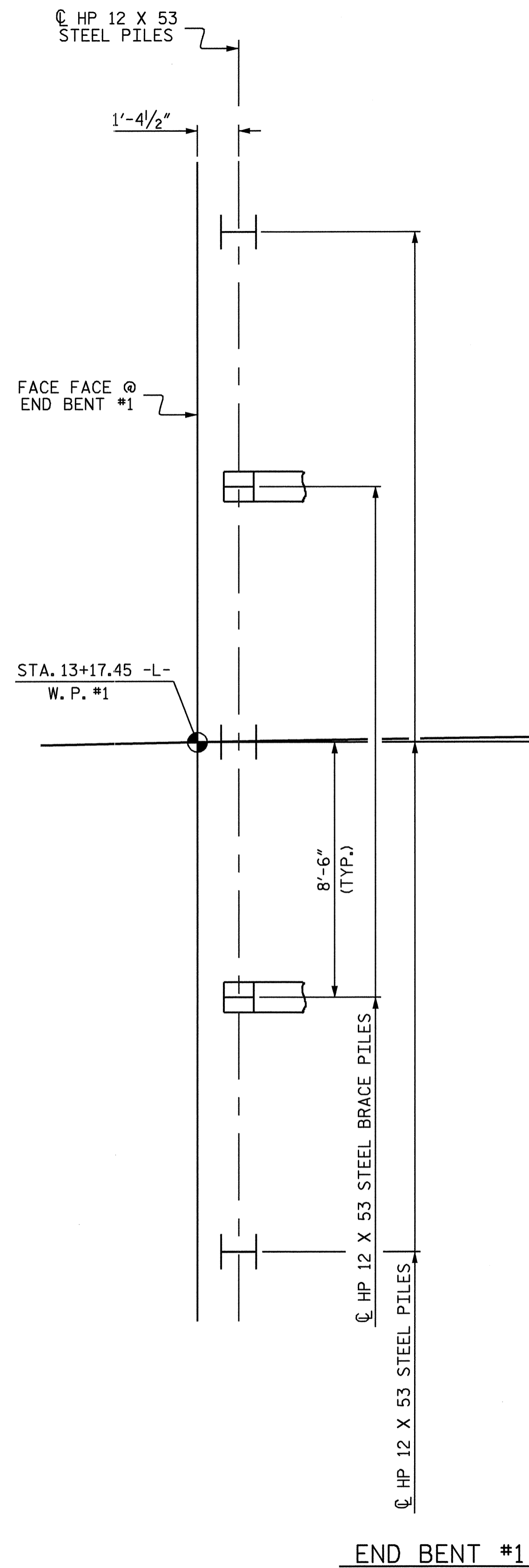
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2105
 OVER REEMS CREEK
 BETWEEN SR 2129 AND SR 1003

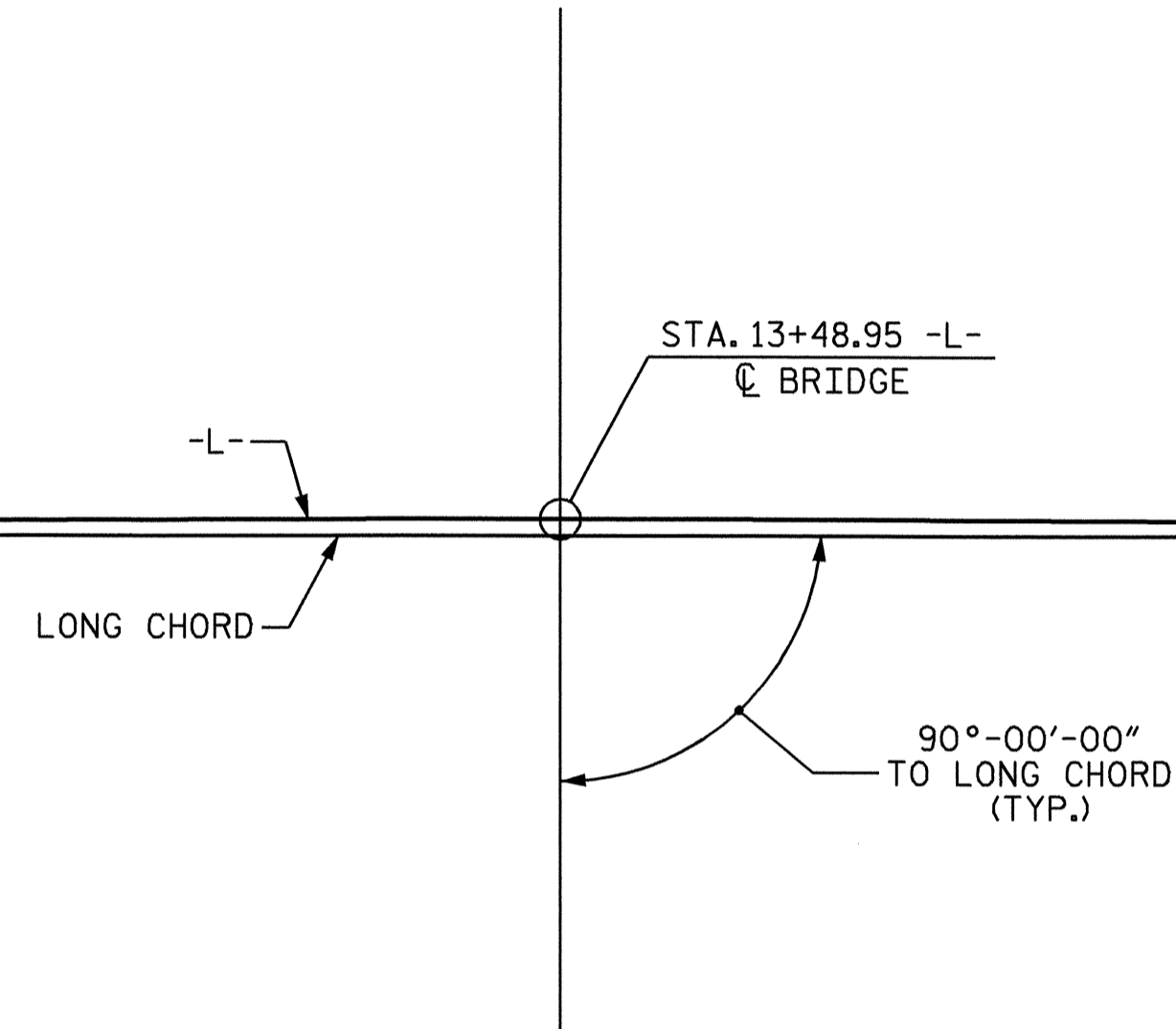
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			20
2			4			

NOTES

FOR PILES, SEE PILES SPECIAL PROVISIONS.
 PILES AT END BENT NO.1 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 PILES AT END BENT NO.2 ARE DESIGNED FOR A FACTORED RESISTANCE OF 90 TONS PER PILE. DRIVE PILES TO A REQUIRED DRIVING RESISTANCE OF 150 TONS PER PILE.
 PILE EXCAVATION IS REQUIRED TO INSTALL PILES AT END BENT NO.2. EXCAVATE HOLES TO ELEVATION 2079 FT. FOR PILE EXCAVATION, SEE PILES SPECIAL PROVISION.
 CONCRETE IS REQUIRED TO FILL HOLES FOR PILE EXCAVATION AT END BENT NO.2.
 THE DESIGN SCOUR ELEVATION FOR END BENT NO.2 IS 2091.0 FT.
 SHEET PILES ARE TO BE INSTALLED TO REFUSAL ELEVATION AT END BENT NO.2.
 FOR 18" STEEL SHEET PILES, SEE SPECIAL PROVISIONS.

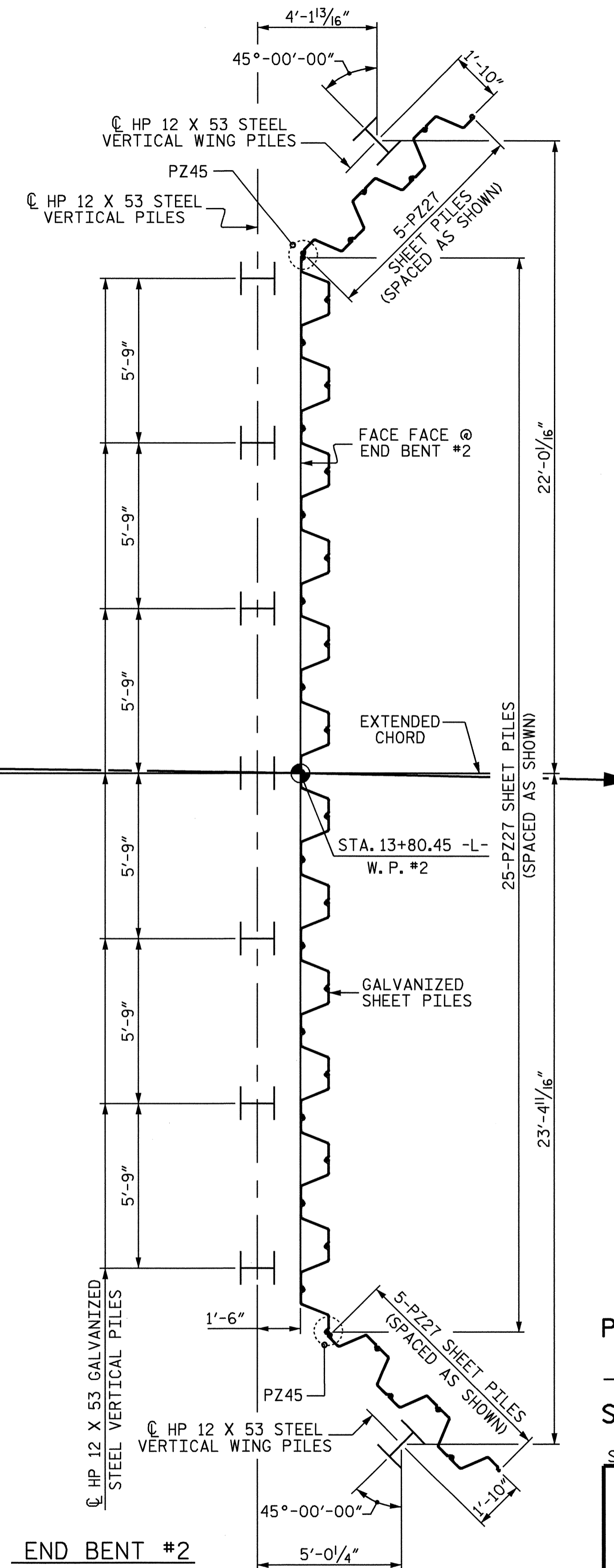


END BENT #1

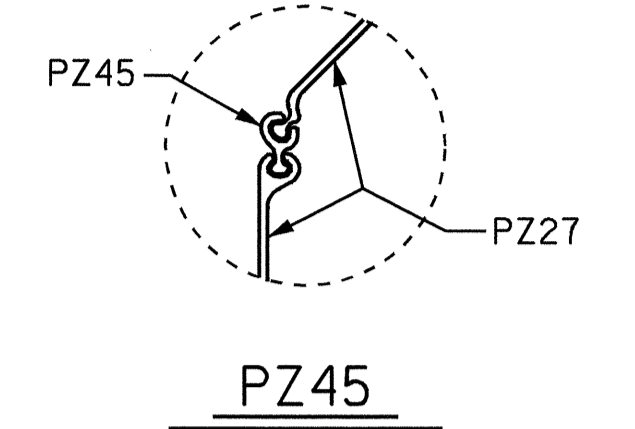


FOUNDATION LAYOUT

DIMENSIONS LOCATING PILES ARE SHOWN TO THE PILE CENTERLINE AT BOTTOM OF CAP
 BRACE PILES AT END BENT #1 ARE BATTERED AT 3:12



END BENT #2

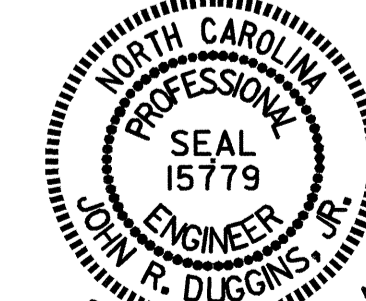


PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2105
 OVER REEMS CREEK
 BETWEEN SR 2129 AND SR 1003



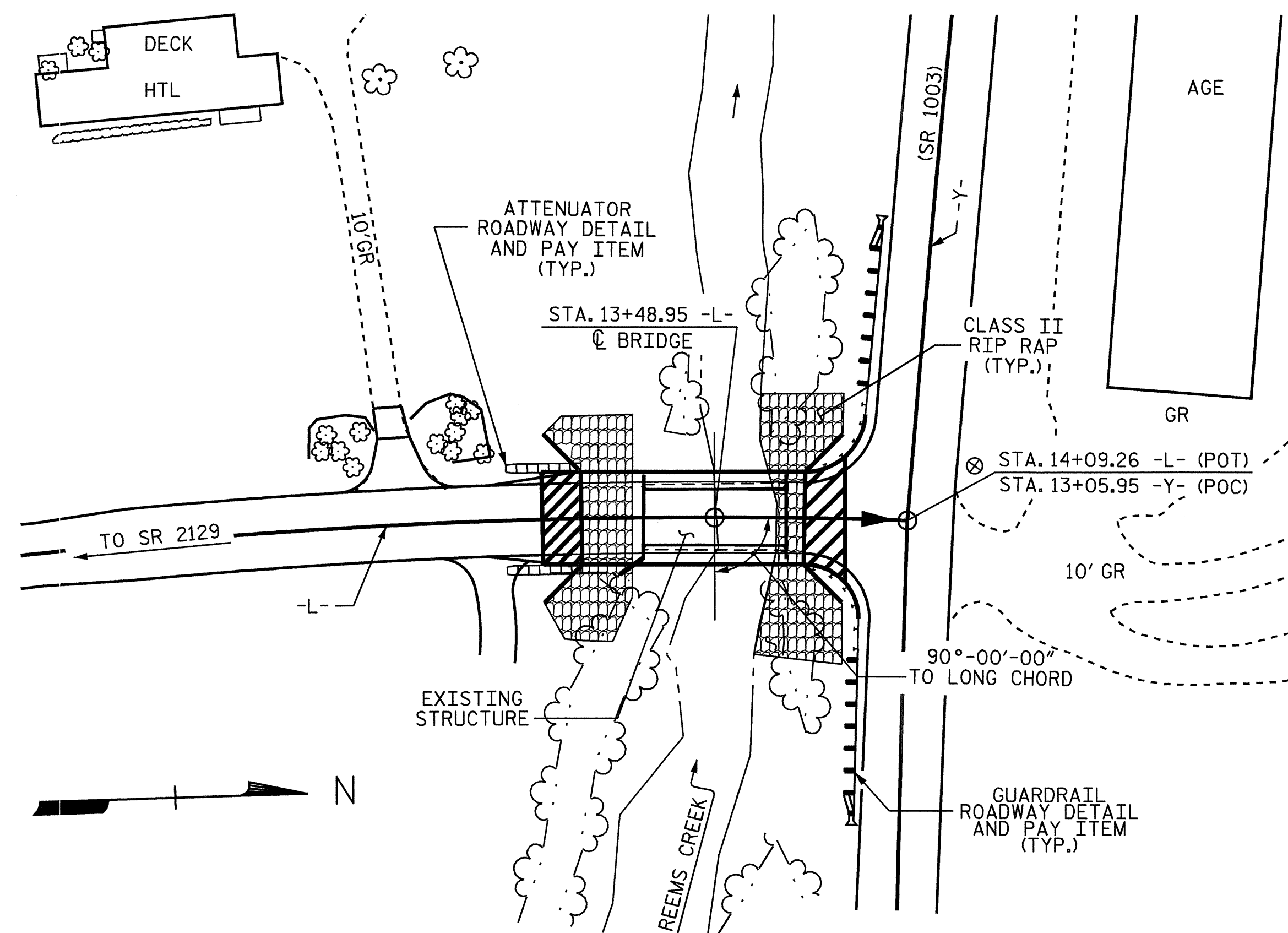
11/9/09

DRAWN BY : A. SORSENGINH DATE : 9/3/09
 CHECKED BY : D. HODGE DATE : 10/09

05-NOV-2009 14:50
 r:\structures\b4446\asorsenginh\microstation\b4446.sd.fl.dgn
 asorsenginh

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			20
2			4			

NC005



HYDRAULIC DATA		OVERTOPPING FLOOD DATA	
DESIGN DISCHARGE	= 3,455 CFS.	OVERTOPPING DISCHARGE	= 4,050 CFS.
FREQUENCY OF DESIGN FLOOD	= 25 YRS.	FREQUENCY OF OVERTOPPING FLOOD	= 25 YRS. +
DESIGN HIGH WATER ELEVATION	= 2101.8	OVERTOPPING FLOOD ELEVATION	= 2104.3
DRAINAGE AREA	= 21.6 SQ. MI.		
BASIC DISCHARGE (Q100)	= 5,090 CFS.		
BASIC HIGH WATER ELEVATION	= 2105.3		

FOR UTILITY INFORMATION, SEE UTILITY PLANS AND SPECIAL PROVISIONS.

LOCATION SKETCH

TOTAL BILL OF MATERIAL

	REMOVAL OF EXISTING STRUCTURE	PILE EXCAVATION IN SOIL	PILE EXCAVATION NOT IN SOIL	UNCLASSIFIED STRUCTURE EXCAVATION	CLASS A CONCRETE	BRIDGE APPROACH SLABS	REINFORCING STEEL	HP 12 X 53 STEEL PILES		HP 12 X 53 GALVANIZED STEEL PILES	VERTICAL CONCRETE BARRIER RAIL	RIP RAP CLASS II (2'-0" THICK)	FILTER FABRIC FOR DRAINAGE	ELASTOMERIC BEARINGS	3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLABS	18" GALVANIZED STEEL SHEET PILES	
	LUMP SUM	LIN. FT.	LIN. FT.	LUMP SUM	CU. YDS.	LUMP SUM	LBS.	NO.	LIN. FT.	NO.	LIN. FT.	TONS	SQ. YDS.	LUMP SUM	NO.	LIN. FT.	SQ. FT.
SUPERSTRUCTURE	LUMP SUM					LUMP SUM					121.5				10	607.5	
END BENT NO. 1				LUMP SUM	16.8		2330	5	150			81	90				
END BENT NO. 2		145	45	LUMP SUM	20.1		2608			9	225	60	67			955	
TOTAL	LUMP SUM	145	45	LUMP SUM	36.9	LUMP SUM	4938	5	150	9	225	141	157	LUMP SUM	10	607.5	955

ASSUMED LIVE LOAD = HL 93 OR ALTERNATE LOADING.
 FOR OTHER DESIGN DATA AND GENERAL NOTES, SEE SHEET SN.
 FOR EROSION CONTROL MEASURES, SEE EROSION CONTROL PLANS.
 THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

THE EXISTING STRUCTURE CONSISTING OF 1 SPAN @ 40'-6" WITH AN ASPHALT WEARING SURFACE OVER A TIMBER DECK ON A STEEL GIRDER FLOOR BEAM SYSTEM SUPERSTRUCTURE AND A CLEAR ROADWAY WIDTH OF 15'-8" ON A SUBSTRUCTURE CONSISTING OF TIMBER CAPS ON TIMBER POST AND SILLS END BENTS AND LOCATED AT THE PROPOSED STRUCTURE LOCATION SHALL BE REMOVED, SEE SPECIAL PROVISIONS FOR REMOVAL OF EXISTING STRUCTURE.

REMOVAL OF THE EXISTING BRIDGE SHALL BE PERFORMED SO AS NOT TO ALLOW DEBRIS TO FALL INTO THE WATER. THE CONTRACTOR SHALL REMOVE THE BRIDGE AND SUBMIT PLANS FOR DEMOLITION IN ACCORDANCE WITH ARTICLE 402-2 OF THE STANDARD SPECIFICATIONS.

THE MATERIAL SHOWN IN THE CROSS-HATCHED AREA SHALL BE EXCAVATED FOR A DISTANCE OF 25 FEET, EACH SIDE OF CENTERLINE ROADWAY AS DIRECTED BY THE ENGINEER. THIS WORK WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR UNCLASSIFIED STRUCTURE EXCAVATION. SEE SECTION 412 OF THE STANDARD SPECIFICATIONS.

THE SUBSTRUCTURE OF THE EXISTING BRIDGE INDICATED ON THE PLANS IS FROM THE BEST INFORMATION AVAILABLE. SINCE THIS INFORMATION IS SHOWN FOR THE CONVENIENCE OF THE CONTRACTOR, THE CONTRACTOR SHALL HAVE NO CLAIM WHATSOEVER AGAINST THE DEPARTMENT OF TRANSPORTATION FOR ANY DELAYS OR ADDITIONAL COST INCURRED BASED ON DIFFERENCES BETWEEN THE EXISTING BRIDGE SUBSTRUCTURE SHOWN ON THE PLANS AND THE ACTUAL CONDITIONS AT THE PROJECT SITE.

ASPHALT WEARING SURFACE IS INCLUDED IN ROADWAY QUANTITY ON ROADWAY PLANS.

THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH HEC 18, "EVALUATING SCOUR AT BRIDGES", MAY, 2001.

THIS BRIDGE HAS BEEN DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR SEISMIC DESIGN FOR SEISMIC PERFORMANCE ZONE 1.

THE CONTRACTOR SHALL PROVIDE INDEPENDENT ASSURANCE SAMPLES OF REINFORCING STEEL AS FOLLOWS: FOR PROJECTS REQUIRING UP TO 400 TONS OF REINFORCING STEEL, ONE 30 INCH SAMPLE OF EACH SIZE BAR USED, AND FOR PROJECTS REQUIRING OVER 400 TONS OF REINFORCING STEEL, TWO 30 INCH SAMPLES OF EACH SIZE BAR USED. THE BARS FROM WHICH THE SAMPLES ARE TAKEN MUST THEN BE SPLICED WITH REPLACEMENT BARS OF THE SIZE AND LENGTH OF THE SAMPLE PLUS A MINIMUM LAP SPLICE OF THIRTY BAR DIAMETERS.

INASMUCH AS THE PAINT SYSTEM ON THE EXISTING STRUCTURAL STEEL CONTAINS LEAD, THE CONTRACTOR'S ATTENTION IS DIRECTED TO ARTICLE 107-1 OF THE STANDARD SPECIFICATIONS. ANY COSTS RESULTING FROM COMPLIANCE WITH APPLICABLE STATE OR FEDERAL REGULATIONS PERTAINING TO HANDLING OF MATERIALS CONTAINING LEAD BASED PAINT SHALL BE INCLUDED IN THE BID PRICE FOR "REMOVAL OF EXISTING STRUCTURE AT STATION 13+48.95 -L-".

FOR SUBMITTAL OF WORKING DRAWINGS, SEE SPECIAL PROVISIONS.

FOR FALSEWORK AND FORMWORK, SEE SPECIAL PROVISIONS.

THIS BRIDGE SHALL BE CONSTRUCTED USING TOP-DOWN CONSTRUCTION METHODS. THE USE OF A TEMPORARY CAUSEWAY OR WORK BRIDGE IS NOT PERMITTED.

FOR CRANE SAFETY, SEE SPECIAL PROVISIONS.

FOR PRESTRESSED CONCRETE MEMBERS, SEE SPECIAL PROVISIONS.

FOR GROUT FOR STRUCTURES, SEE SPECIAL PROVISIONS.

THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

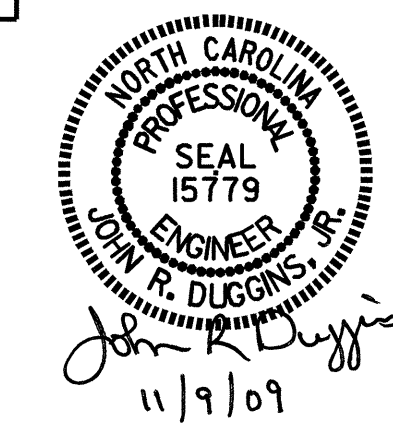
FOR CURING CONCRETE, SEE SPECIAL PROVISIONS.

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

GENERAL DRAWING
 FOR BRIDGE ON SR 2105
 OVER REEMS CREEK
 BETWEEN SR 2129 AND SR 1003



REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3-3
1			3			TOTAL SHEETS
2			4			20

DRAWN BY : A. SORSENGINH DATE : 9/9/09
 CHECKED BY : J.R. DUGGINS DATE : 9/09

LOAD FACTORS:

DESIGN LOAD RATING FACTORS	LIMIT STATE	γ_{DC}	γ_{DW}
	STRENGTH I	1.25	1.50
	SERVICE III	1.00	1.00

	YEAR	ADTT
CURRENT	2010	19
FUTURE	2030	33

NOTES:

MINIMUM RATING FACTORS ARE BASED ON THE STRENGTH I AND SERVICE III LIMIT STATES.

ALLOWABLE STRESSES FOR SERVICE III LIMIT STATE ARE AS REQUIRED FOR DESIGN.

LOAD AND RESISTANCE FACTOR RATING (LRFR) SUMMARY FOR PRESTRESSED CONCRETE GIRDERS																							
LEVEL	VEHICLE	WEIGHT (TONS)	CONTROLLING LOAD RATING #	MINIMUM RATING FACTORS (RF)	TONS = W x RF	STRENGTH I LIMIT STATE										SERVICE III LIMIT STATE					COMMENT NUMBER		
						MOMENT					SHEAR					MOMENT							
						LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN	GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)	LIVE-LOAD FACTORS (γ_{LL})	DISTRIBUTION FACTORS (DF)	RATING FACTOR	SPAN		GIRDER LOCATION	DISTANCE FROM LEFT END OF SPAN (ft)
DESIGN LOAD RATING	HL-93 (INVENTORY)	N/A	①	1.01	--	1.75	0.275	1.36	A	ER	29.875	0.519	1.15	A	ER	2.988	0.80	0.275	1.01	A	ER	29.875	
	HL-93 (OPERATING)	N/A		1.15	--	1.35	0.275	1.76	A	ER	29.875	0.519	1.15	A	ER	2.988	N/A	--	--	--	--	--	
	HS-20 (INVENTORY)	36.000	②	1.03	37.08	1.80	0.275	1.68	A	ER	29.875	0.519	1.38	A	ER	2.988	1.00	0.275	1.03	A	ER	29.875	
	HS-20 (OPERATING)	36.000		1.38	49.67	1.35	0.275	2.24	A	ER	29.875	0.519	1.38	A	ER	2.988	N/A	--	--	--	--	--	
LEGAL LOAD RATING	SINGLE VEHICLE (SV)	SNSH	13.500		2.79	37.63	1.40	0.275	3.63	A	ER	29.875	0.519	3.22	A	ER	2.988	0.80	0.275	2.79	A	ER	29.875
		SNGARBS2	20.000		2.13	42.50	1.40	0.275	2.77	A	ER	29.875	0.519	2.31	A	ER	2.988	0.80	0.275	2.13	A	ER	29.875
		SNAGRIS2	22.000		2.04	44.83	1.40	0.275	2.66	A	ER	29.875	0.519	2.15	A	ER	2.988	0.80	0.275	2.04	A	ER	29.875
		SNCOTTS3	27.250		1.39	37.81	1.40	0.275	1.81	A	ER	29.875	0.519	1.61	A	ER	2.988	0.80	0.275	1.39	A	ER	29.875
		SNAGGRS4	34.925		1.18	41.04	1.40	0.275	1.54	A	ER	29.875	0.519	1.35	A	ER	2.988	0.80	0.275	1.18	A	ER	29.875
		SNS5A	35.550		1.15	40.88	1.40	0.275	1.50	A	ER	29.875	0.519	1.37	A	ER	2.988	0.80	0.275	1.15	A	ER	29.875
		SNS6A	39.950		1.06	42.45	1.40	0.275	1.39	A	ER	29.875	0.519	1.26	A	ER	2.988	0.80	0.275	1.06	A	ER	29.875
		SNS7B	42.000		1.01	42.53	1.40	0.275	1.32	A	ER	29.875	0.519	1.25	A	ER	2.988	0.80	0.275	1.01	A	ER	29.875
	TRUCK TRACTOR SEMI-TRAILER (TTST)	TNAGRIT3	33.000		1.30	54.60	1.40	0.275	1.70	A	ER	29.875	0.519	1.49	A	ER	2.988	0.80	0.275	1.30	A	ER	29.875
		TNT4A	33.075		1.31	55.13	1.40	0.275	1.71	A	ER	29.875	0.519	1.45	A	ER	2.988	0.80	0.275	1.31	A	ER	29.875
		TNT6A	41.600		1.08	44.72	1.40	0.275	1.41	A	ER	29.875	0.519	1.34	A	ER	2.988	0.80	0.275	1.08	A	ER	29.875
		TNT7A	42.000		1.09	48.94	1.40	0.275	1.42	A	ER	29.875	0.519	1.29	A	ER	2.988	0.80	0.275	1.09	A	ER	29.875
		TNT7B	42.000		1.14	48.91	1.40	0.275	1.48	A	ER	29.875	0.519	1.21	A	ER	2.988	0.80	0.275	1.14	A	ER	29.875
		TNAGRIT4	43.000		1.08	35.48	1.40	0.275	1.40	A	ER	29.875	0.519	1.17	A	ER	2.988	0.80	0.275	1.08	A	ER	29.875
TNAGT5A	45.000		1.01	45.56	1.40	0.275	1.32	A	ER	29.875	0.519	1.17	A	ER	2.988	0.80	0.275	1.01	A	ER	29.875		
TNAGT5B	45.000		③	1.00	45.00	1.40	0.275	1.30	A	ER	29.875	0.519	1.11	A	ER	2.988	0.80	0.275	1.00	A	ER	29.875	

CONTROLLING LOAD RATING

① DESIGN LOAD RATING (HL-93)

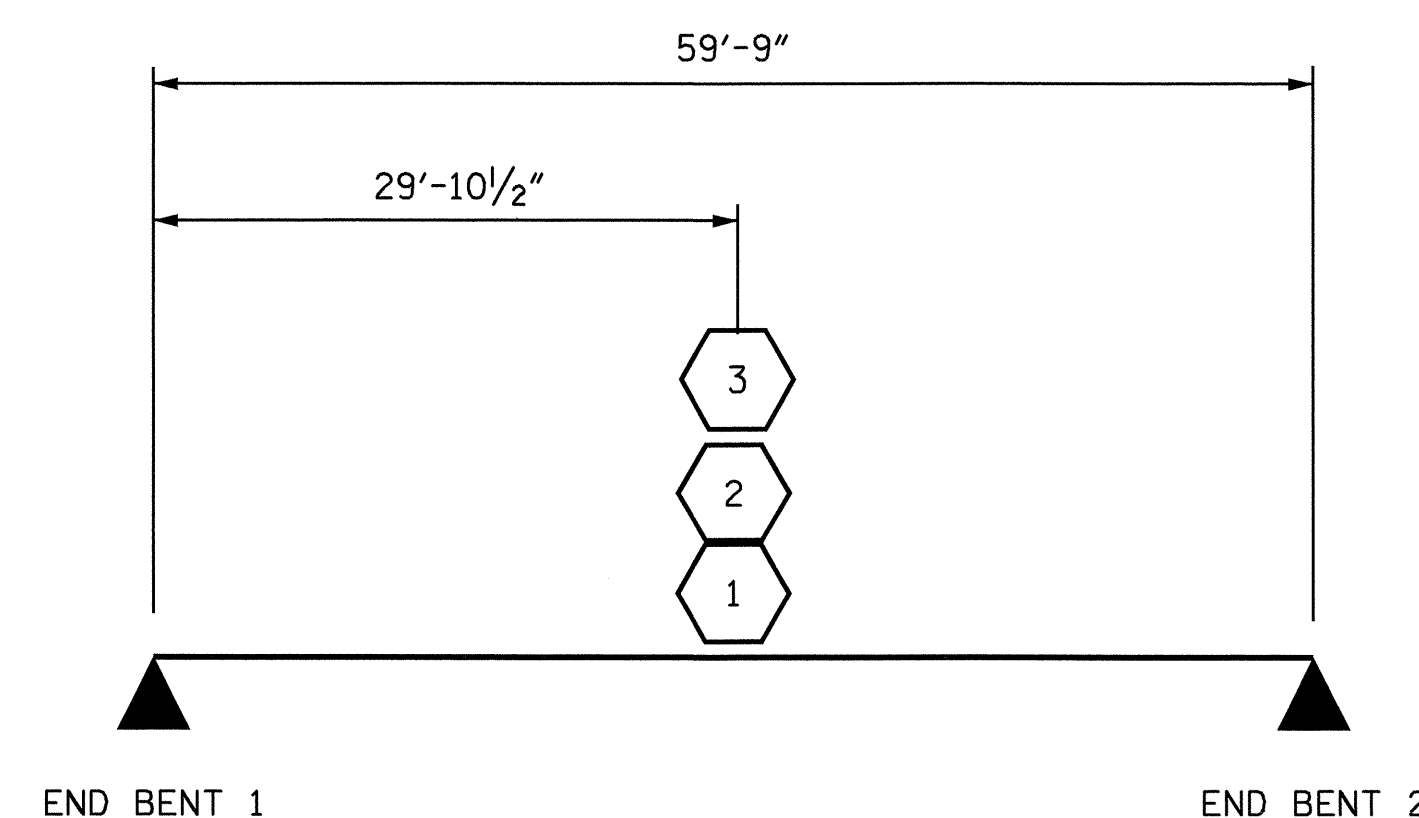
② DESIGN LOAD RATING (HS-20)

③ LEGAL LOAD RATING **

** SEE CHART FOR VEHICLE TYPE

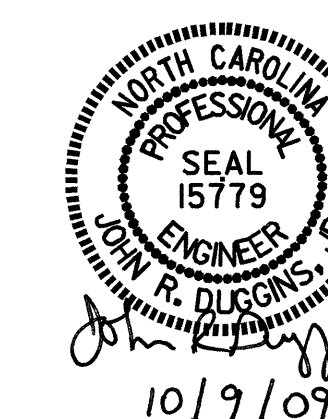
GIRDER LOCATION

I - INTERIOR GIRDER
 EL - EXTERIOR LEFT GIRDER
 ER - EXTERIOR RIGHT GIRDER



LRFR SUMMARY

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-



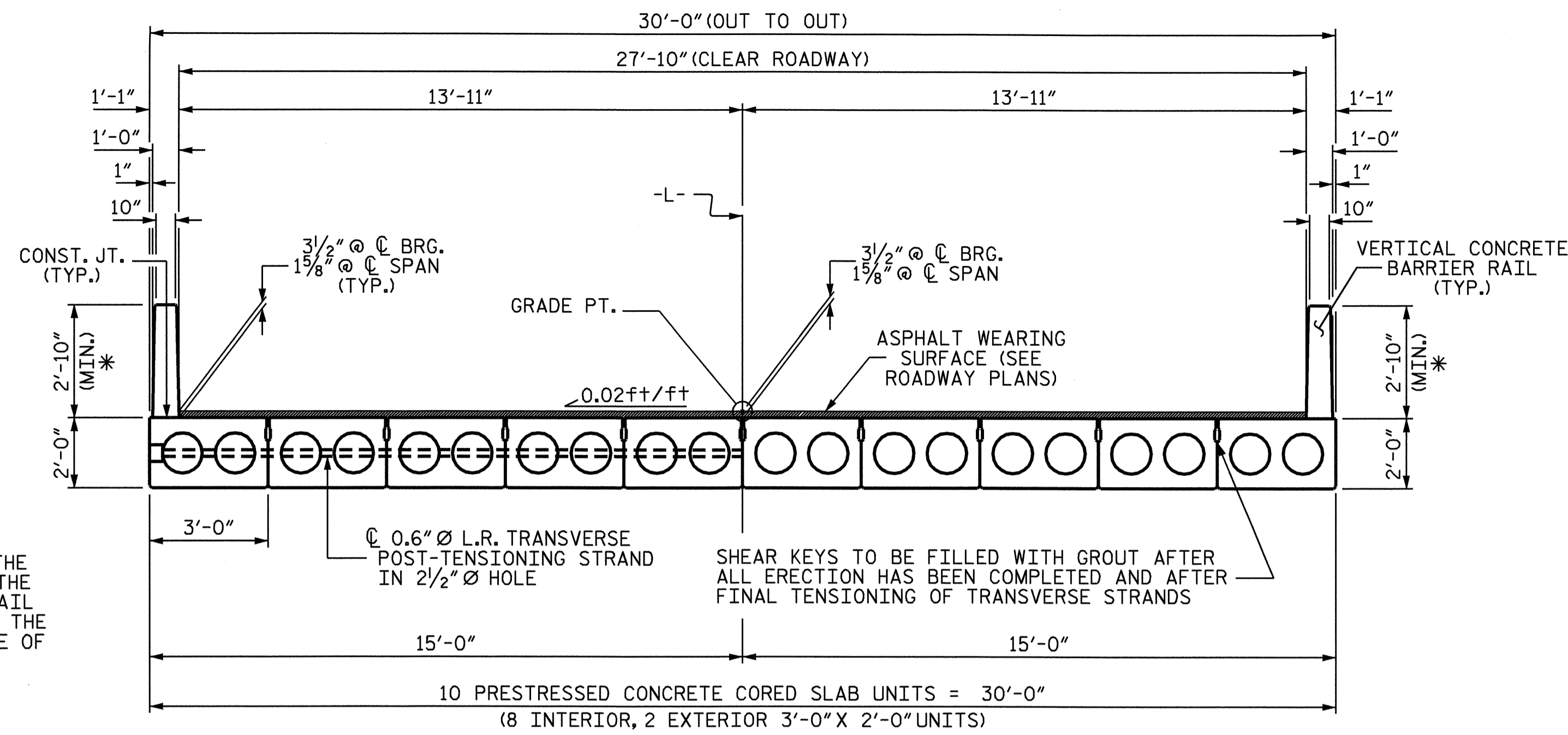
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

LRFR SUMMARY FOR
 PRESTRESSED
 CONCRETE GIRDERS
 (NON-INTERSTATE TRAFFIC)

REVISIONS						TOTAL SHEETS
NO.	BY:	DATE:	NO.	BY:	DATE:	20
1			3			
2			4			

SHEET NO. S-4

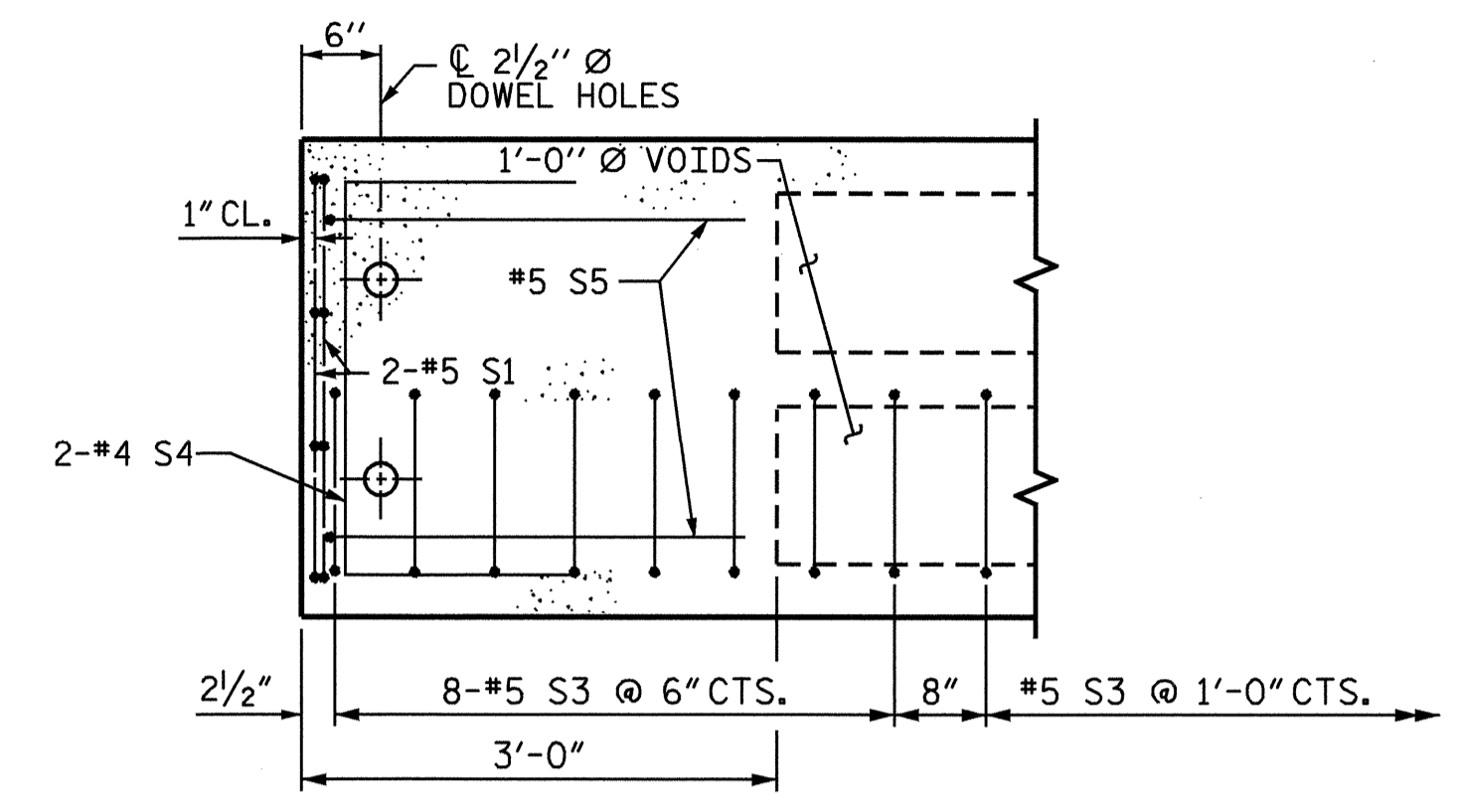
ASSEMBLED BY : M. POOLE	DATE : 10/09
CHECKED BY : J.R. DUGGINS	DATE : 10/09
DRAWN BY : MAA 1/08	REV. 11/12/08RR MAA/GM
CHECKED BY : GM/DI 2/08	



* THE MINIMUM HEIGHT OF THE BARRIER RAIL IS SHOWN. THE HEIGHT OF THE BARRIER RAIL VARIES WHILE THE TOP OF THE RAIL FOLLOWS THE PROFILE OF THE GUTTERLINE.

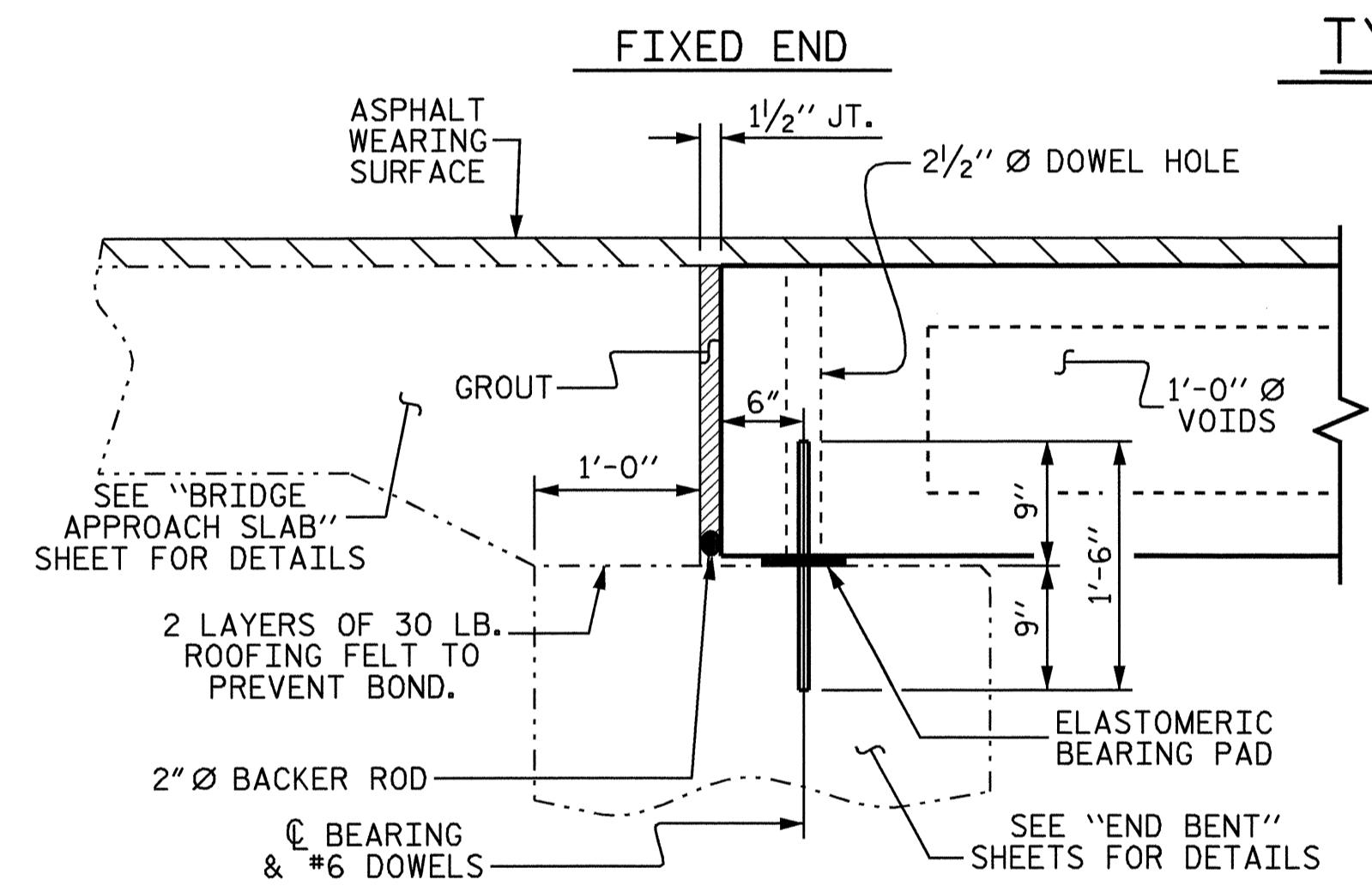
HALF SECTION @ POST TENSIONING LOCATION

HALF SECTION @ END BENT

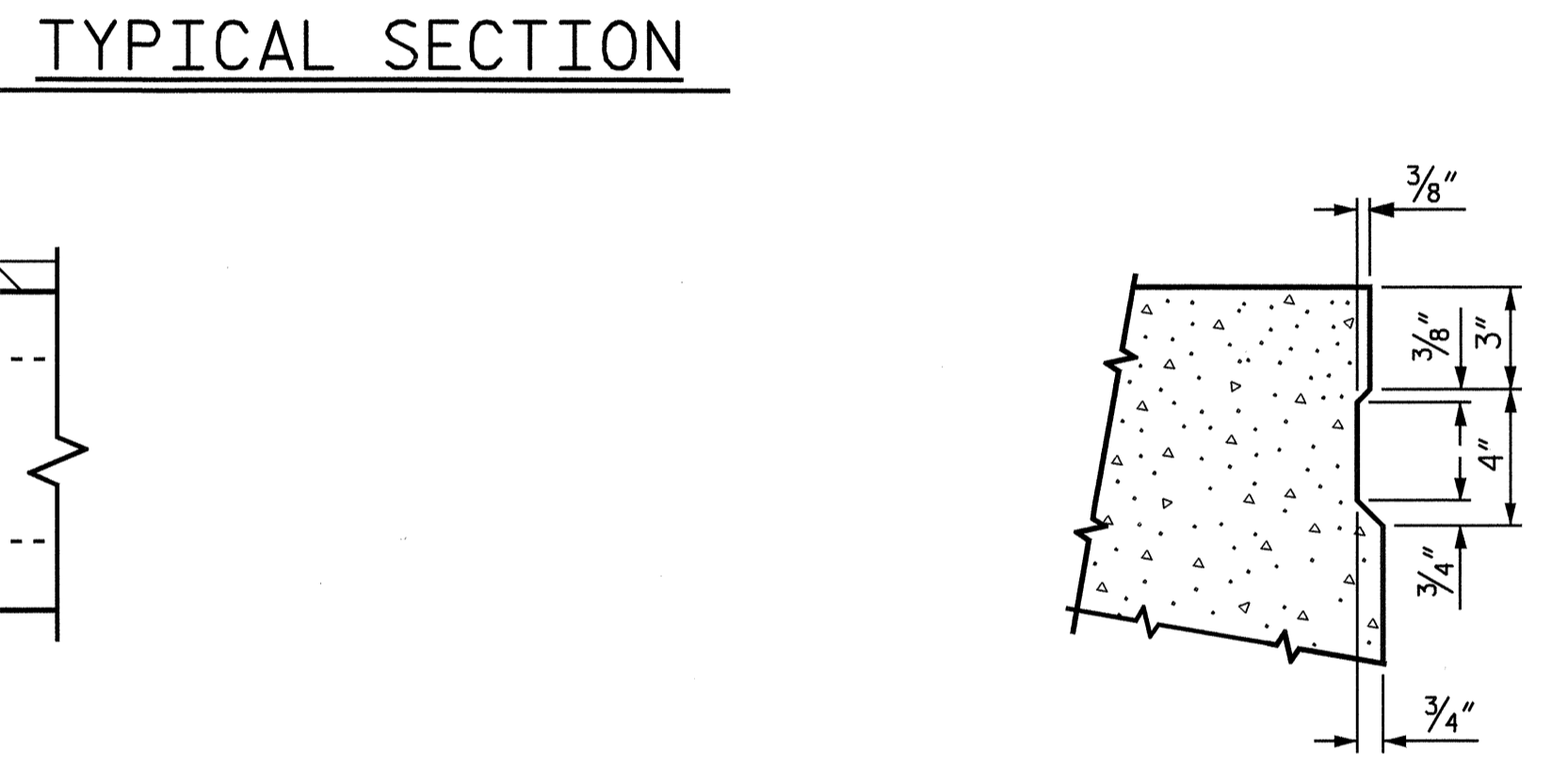


PART PLAN-EXTERIOR SECTION

NOTE: EXTERIOR SECTION SHOWN-INTERIOR SECTION SIMILAR EXCEPT OMIT S3 BARS.



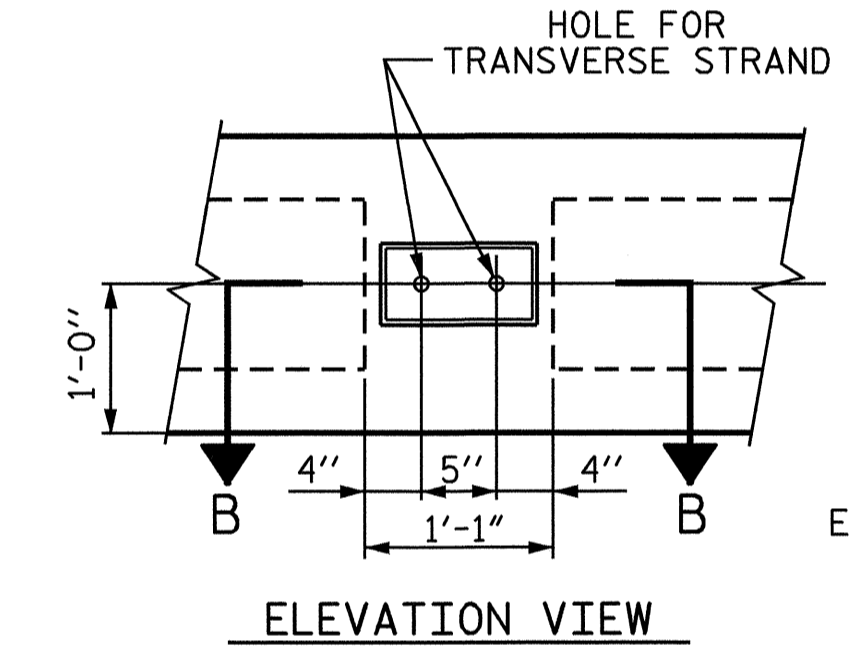
SECTION AT END BENT



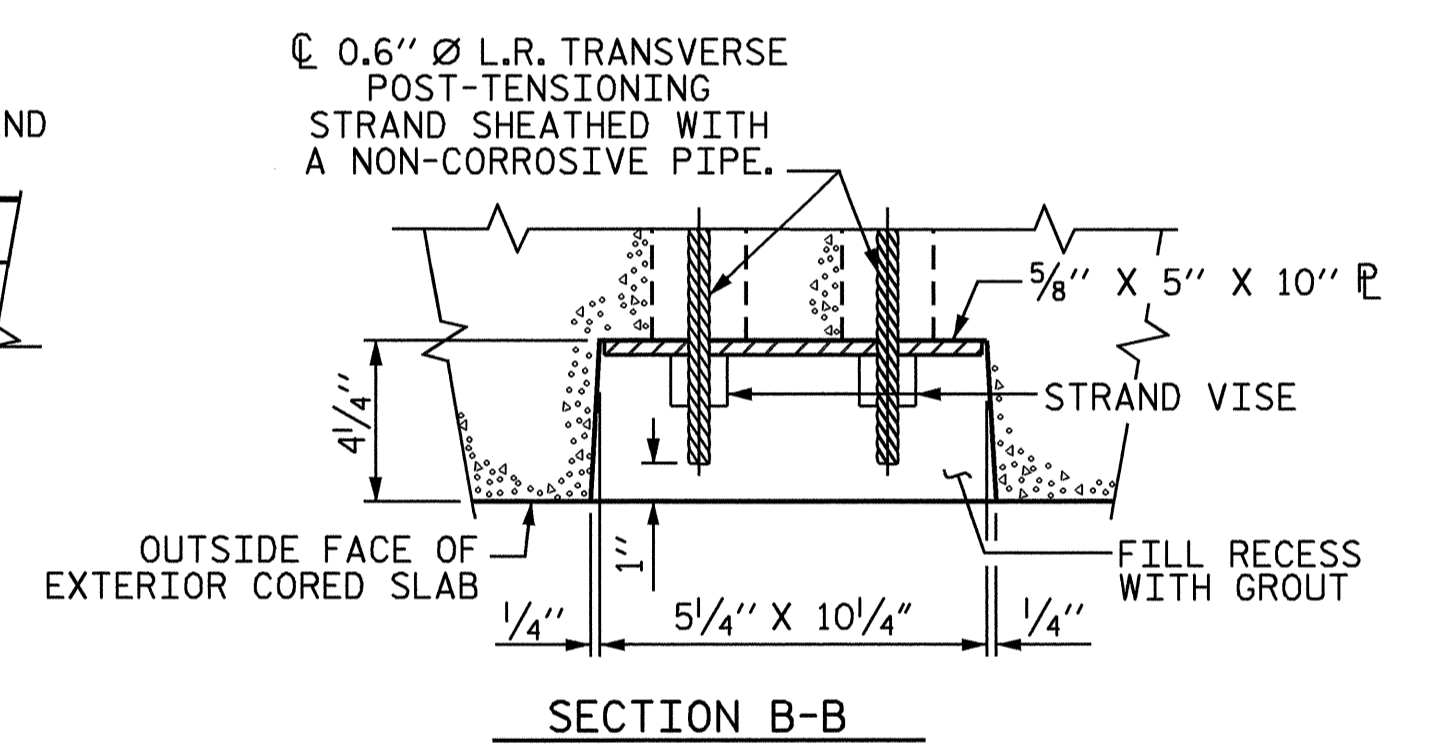
TYPICAL SECTION

SHEAR KEY DETAIL

NOTE: OMIT SHEAR KEY ON OUTSIDE FACE OF EXTERIOR CORED SLABS.



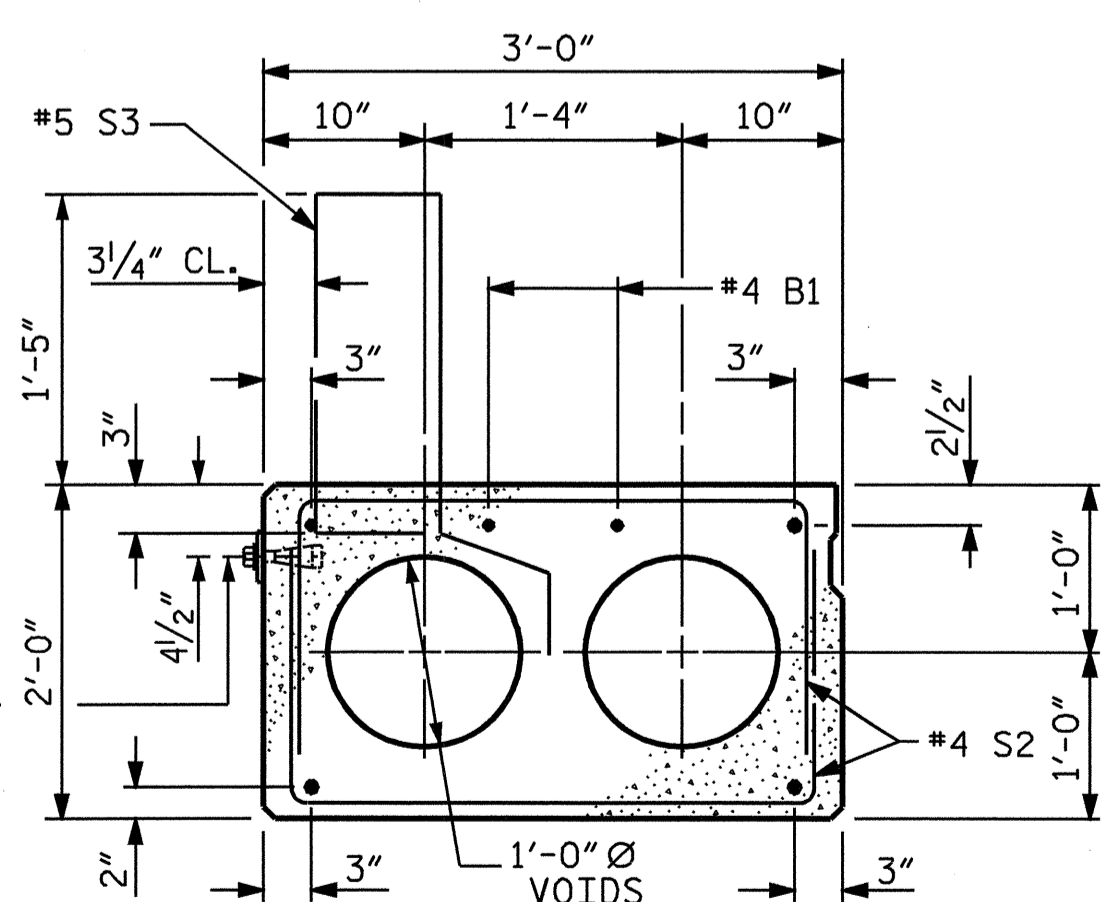
ELEVATION VIEW



SECTION B-B

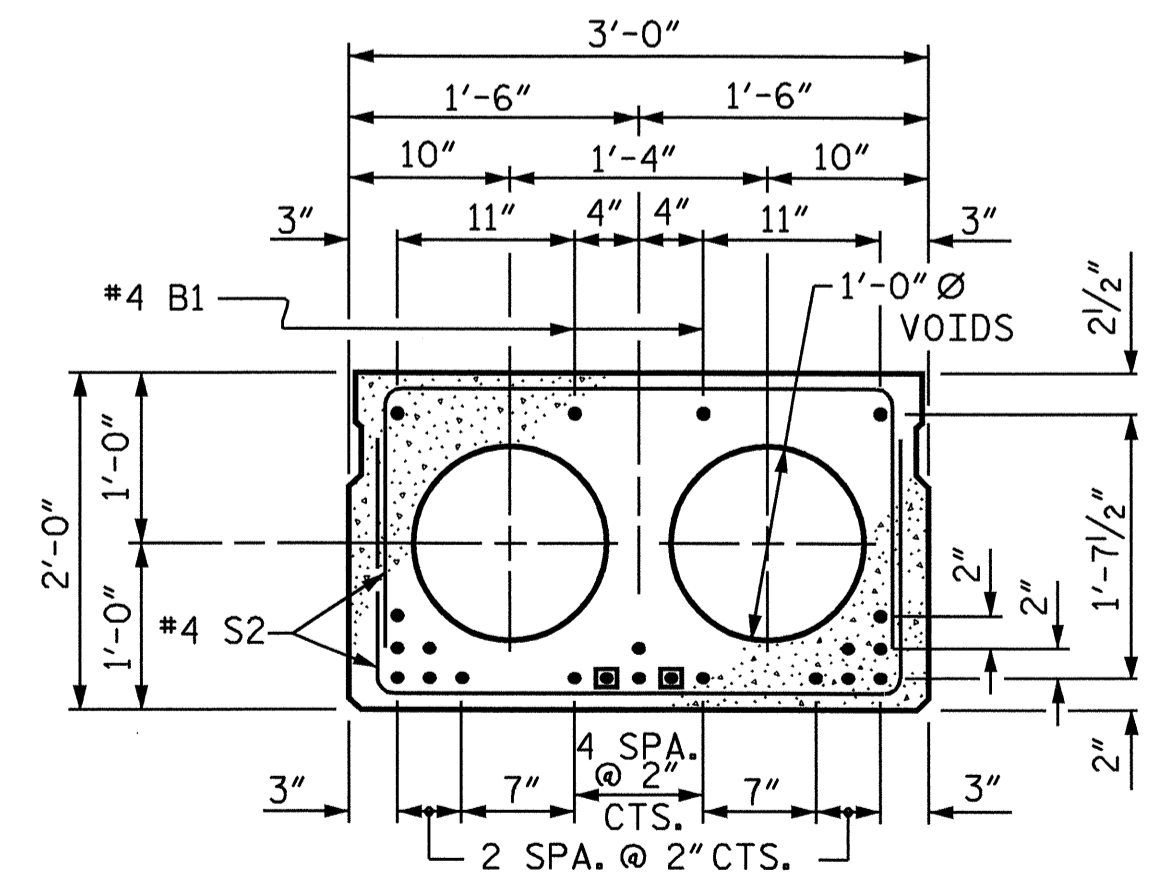
GROUTED RECESS AT END OF POST-TENSIONED STRAND CORED SLABS

3/4" Ø BOLTS WITH WASHERS IN APPROVED CONCRETE INSERTS CAST IN CORED SLAB UNIT AT 10'-0" SPACING. (SEE NOTES, SHEET 4 OF 4)



EXTERIOR SLAB SECTION

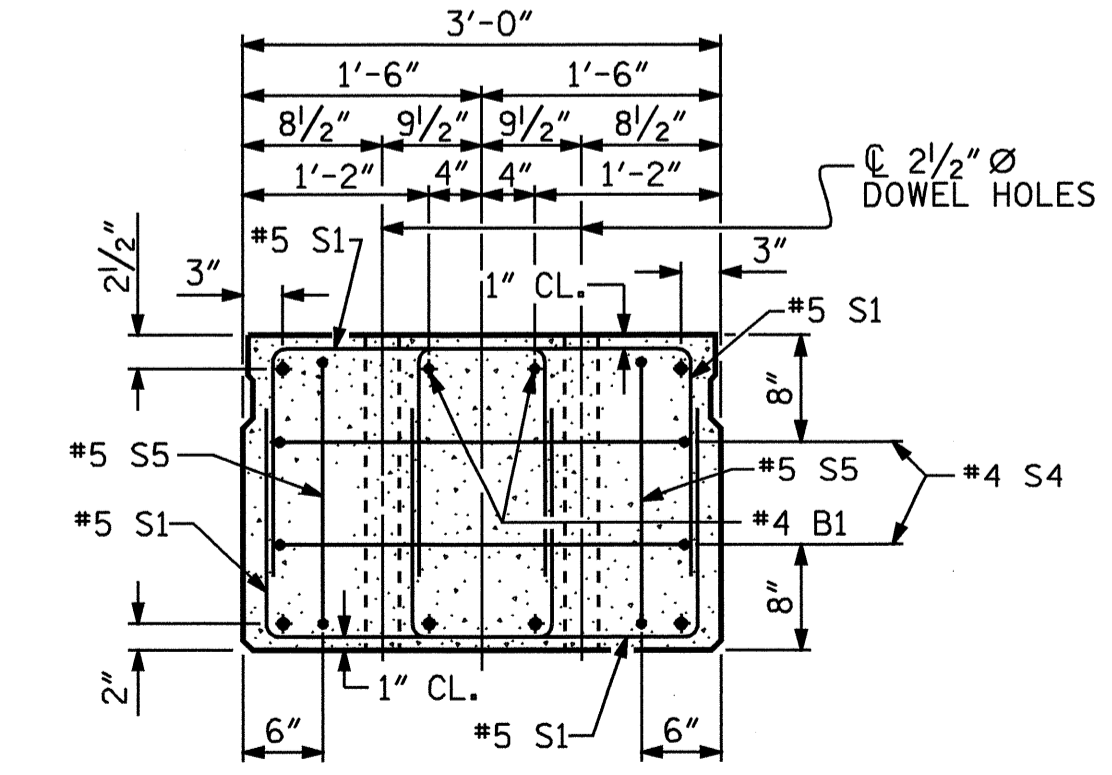
(FOR PRESTRESSED STRAND LAYOUT, SEE INTERIOR SLAB SECTION.)



INTERIOR SLAB SECTION

0.6" Ø LOW RELAXATION STRAND LAYOUT

□ BOND SHALL BE BROKEN ON THESE STRANDS FOR A DISTANCE OF 4'-0" FROM END OF CORED SLAB UNIT, SEE STANDARD SPECIFICATIONS ARTICLE 1078-7



END ELEVATION

SHOWING PLACEMENT OF DOUBLE STIRRUPS AND LOCATION OF DOWEL HOLES. (STRAND LAYOUT NOT SHOWN.) INTERIOR SLAB SECTION SHOWN-EXTERIOR SLAB SECTION SIMILAR EXCEPT SHEAR KEY LOCATION.

PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-

SHEET 1 OF 4

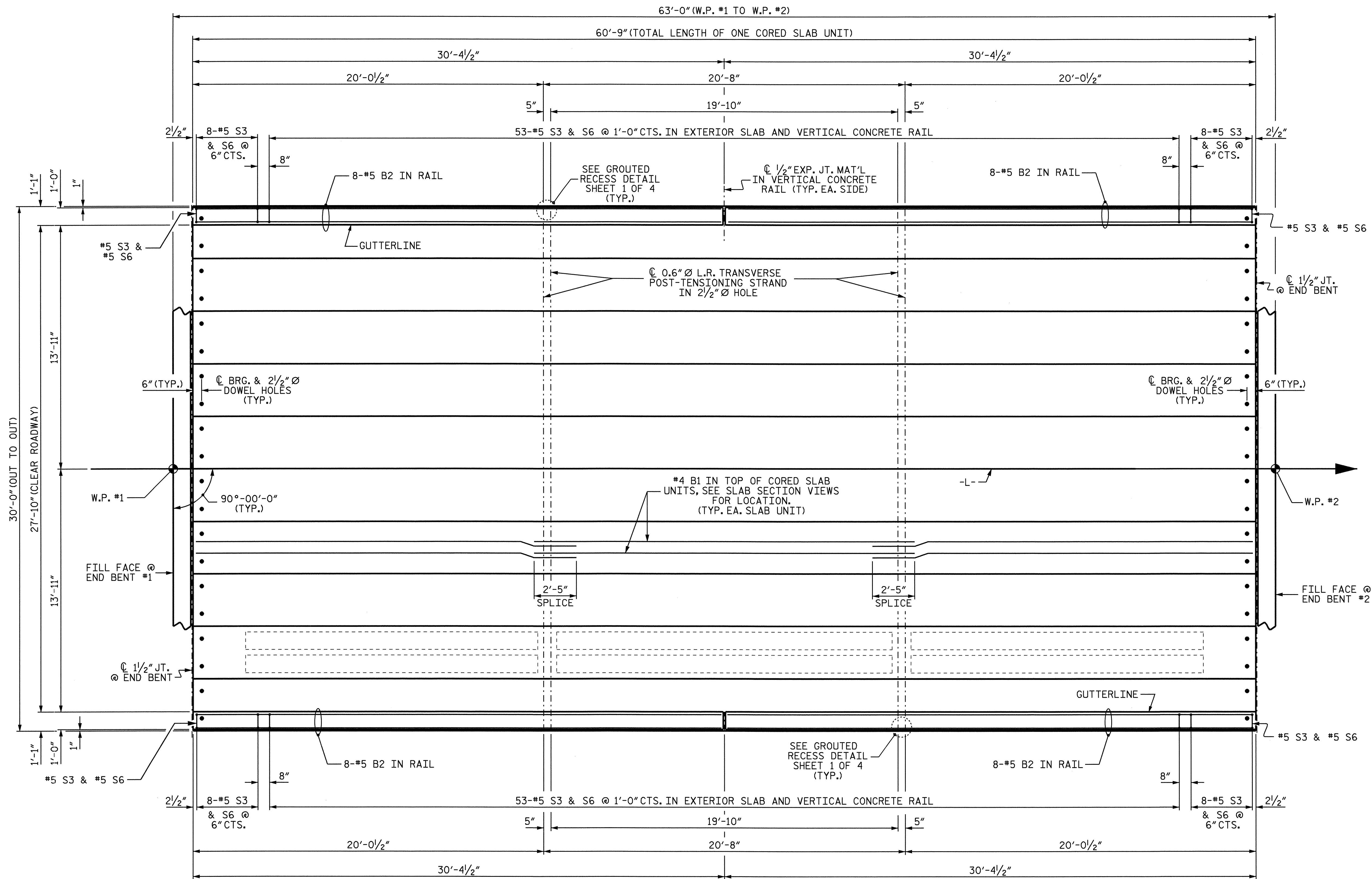
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
3'-0" X 2'-0" PRESTRESSED CONCRETE CORED SLAB UNIT					
REVISIONS					SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		
					S-5
					TOTAL SHEETS 20

PROFESSIONAL ENGINEER
SEAL 15779
JOHN R. DUGGINS, JR.
11/25/09

DRAWN BY: A. SORSENGINH DATE: 3/4/09
CHECKED BY: M. POOLE DATE: 7/09

25-NOV-2009 08:10
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dahodge

NCDD5



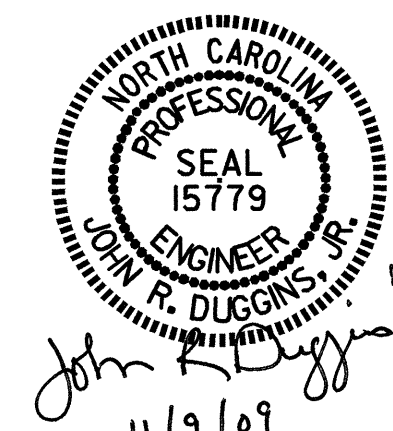
PLAN OF SPAN A

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 2 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUPERSTRUCTURE
 PLAN OF SPAN A

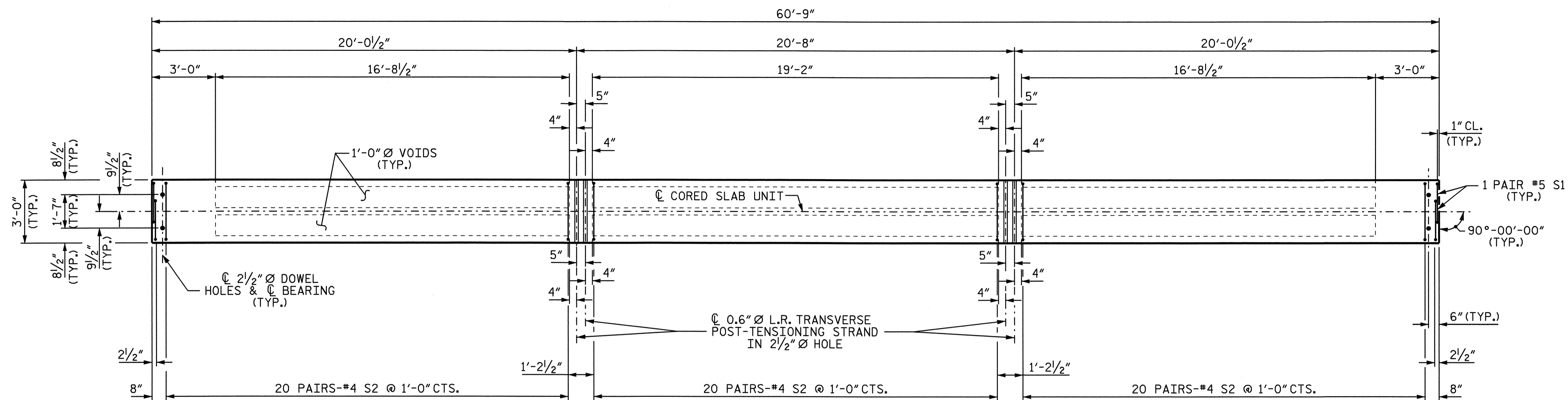


DRAWN BY: A. SORSENGINH DATE: 12/29/08
 CHECKED BY: M. POOLE DATE: 7/09

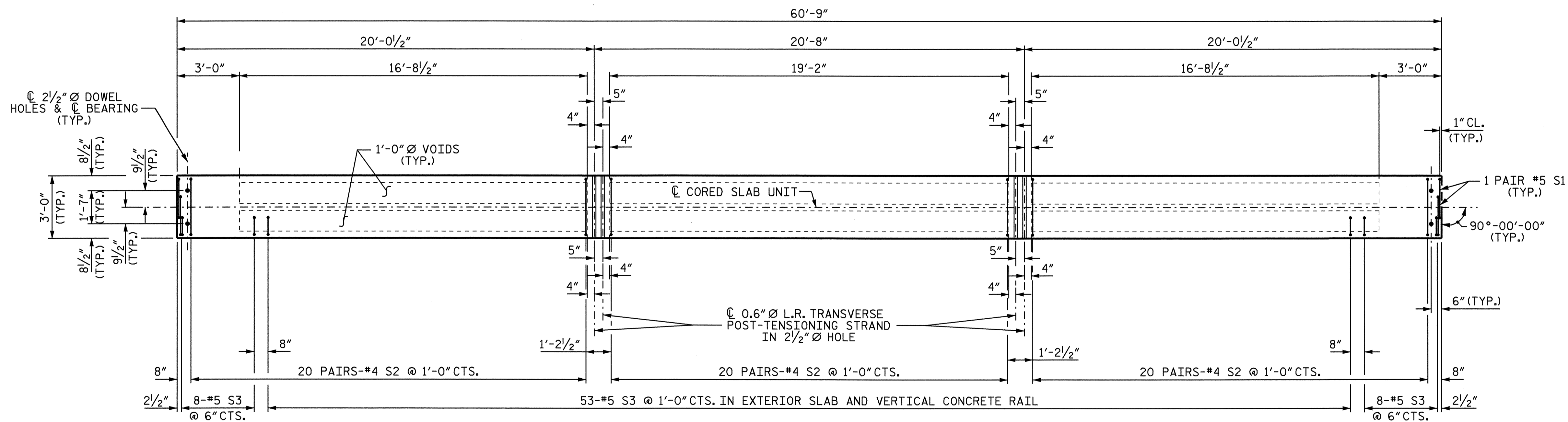
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 asorsenginh

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			20
2			4			

NC005



PLAN OF INTERIOR SLAB - SPAN A

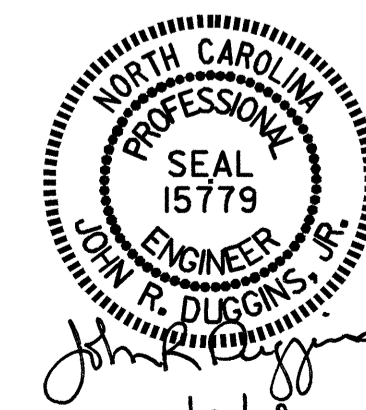


PLAN OF EXTERIOR SLAB - SPAN A

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 3 OF 4

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 3'-0" X 2'-0"
 PRESTRESSED CONCRETE
 CORED SLAB UNIT
 DETAILS



DRAWN BY: A. SORSENGINH DATE: 12/23/08
 CHECKED BY: M. POOLE DATE: 7/09

05-NOV-2009 14:32
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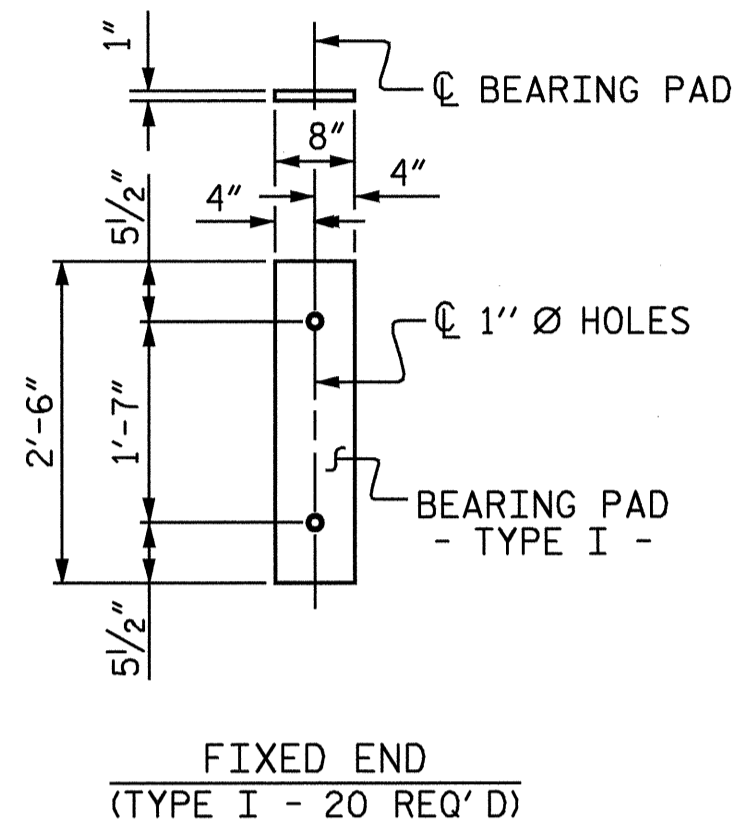
REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	5-7
1			3			TOTAL SHEETS
2			4			20

NC005

GRADE 270 STRANDS	
	0.6" Ø L.R.
AREA (SQUARE INCHES)	0.217
ULTIMATE STRENGTH (LBS. PER STRAND)	58,600
APPLIED PRESTRESS (LBS. PER STRAND)	43,950

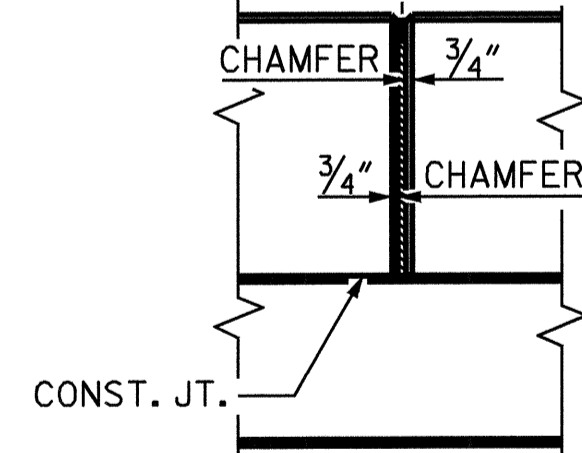
DEAD LOAD DEFLECTION AND CAMBER	
	SPAN A
CAMBER (SLAB ALONE IN PLACE)	2 ⁵ / ₁₆ "
DEFLECTION DUE TO SUPERIMPOSED DEAD LOAD **	1 ¹ / ₁₆ "
FINAL CAMBER	1 ¹ / ₈ "

** INCLUDES FUTURE WEARING SURFACE

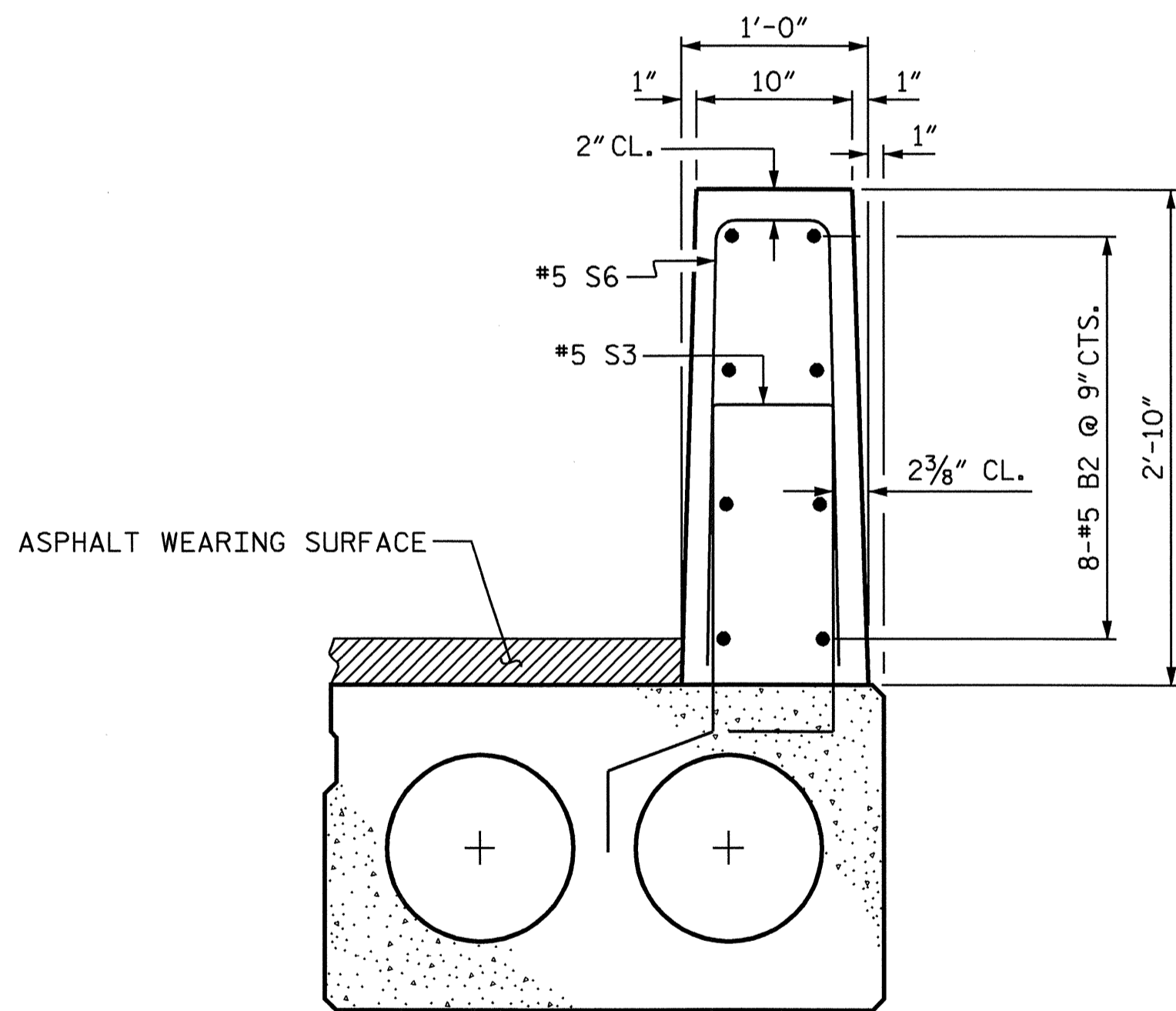


ELASTOMERIC BEARING DETAILS
ELASTOMER IN ALL BEARINGS SHALL BE 50 DUROMETER HARDNESS.

Ø 1/2" EXP. JT. MAT'L HELD IN PLACE WITH GALVANIZED NAILS. (NOTE: OMIT EXP. JT. MAT'L WHEN SLIP FORM IS USED)



ELEVATION AT EXPANSION JOINTS



SECTION VIEW

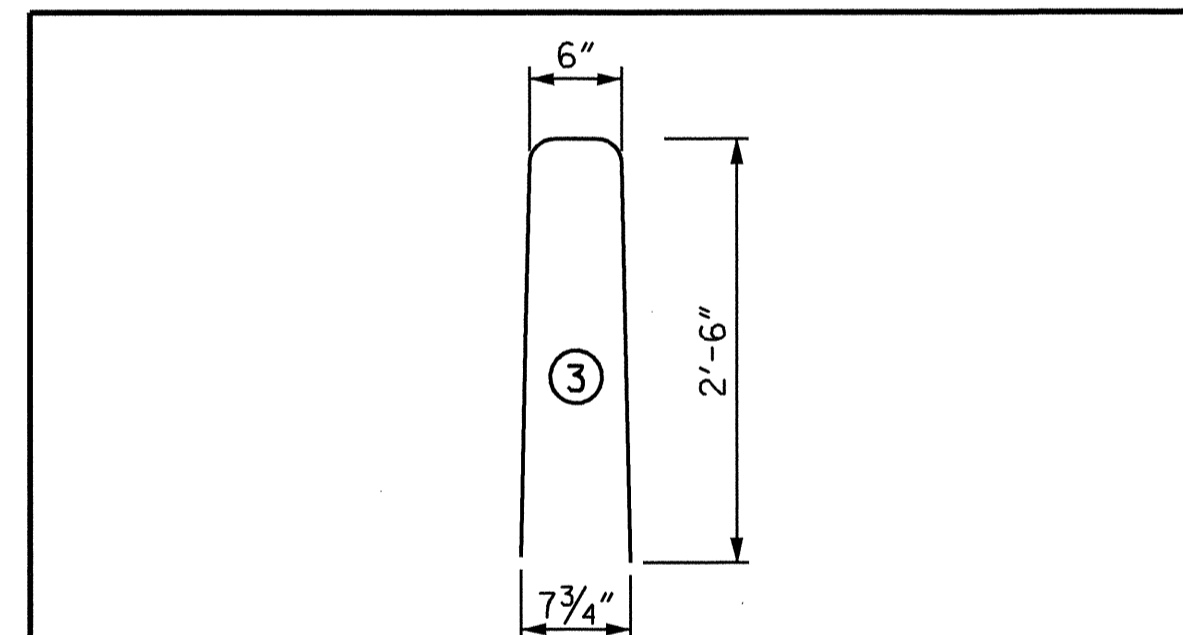
VERTICAL CONCRETE RAIL DETAILS

BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR ONE CORED SLAB SECTION

				EXTERIOR UNIT		INTERIOR UNIT	
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	LENGTH	WEIGHT
B1	6	#4	STR	21'-9"	87	21'-9"	87
S1	8	#5	2	4'-9"	40	4'-9"	40
S2	120	#4	2	5'-10"	468	5'-10"	468
* S3	69	#5	1	5'-8"	408		
S4	4	#4	2	5'-6"	15	5'-6"	15
S5	4	#5	2	7'-1"	30	7'-1"	30
REINFORCING STEEL				LBS.	640		640
* EPOXY COATED REINFORCING STEEL				LBS.	408		
6,000 P.S.I. CONCRETE				CU. YDS.	10.4		10.3
0.6" Ø L.R. STRANDS				No.	20		20



BAR TYPES

ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL FOR CONCRETE RAIL						
BAR	NUMBER	SIZE	TYPE	LENGTH	WEIGHT	
* B2	32	#5	STR	30'-0"	1001	
* S6	138	#5	3	5'-6"	792	
* EPOXY COATED REINFORCING STEEL				LBS.	1793	
CLASS AA CONCRETE				CU. YDS.	11.7	
TOTAL LIN. FT. OF VERTICAL CONC. RAIL					121.5	

CORED SLABS REQUIRED

SPAN A			
	NUMBER	LENGTH	TOTAL LENGTH
EXTERIOR C.S.	2	60'-9"	121'-6"
INTERIOR C.S.	8	60'-9"	486'-0"
SUBTOTAL	10		607'-6"

NOTES

ALL PRESTRESSING STRANDS SHALL BE 7-WIRE LOW RELAXATION GRADE 270 STRANDS AND SHALL CONFORM TO AASHTO M203 EXCEPT FOR SAMPLING REQUIREMENTS WHICH SHALL BE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.

ALL REINFORCING STEEL CAST WITH THE CORED SLAB SECTIONS SHALL BE GRADE 60 AND SHALL BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

RECESSES FOR TRANSVERSE STRANDS SHALL BE GROUTED AFTER THE TENSIONING OF THE STRANDS.

THE 2¹/₂" Ø DOWEL HOLES AT FIXED ENDS OF SLAB SECTIONS SHALL BE FILLED WITH NON-SHRINK GROUT.

THE 2" Ø BACKER ROD SHALL CONFORM TO THE REQUIREMENTS OF TYPE M BOND BREAKER. SEE SECTION 1028 OF THE STANDARD SPECIFICATIONS.

WHEN CORED SLABS ARE CAST, A POSITIVE HOLD-DOWN SYSTEM SHALL BE EMPLOYED TO PREVENT VOIDS FROM RISING OR MOVING SIDWAYS. THIS SYSTEM SHALL BE DESIGNED TO BE LEFT IN PLACE UNTIL THE CONCRETE HAS REACHED RELEASE STRENGTH. AT LEAST THREE WEEKS PRIOR TO CASTING CORED SLABS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER FOR REVIEW AND COMMENT, DETAILED DRAWINGS OF THE PROPOSED HOLD-DOWN SYSTEM. IN ADDITION TO STRUCTURAL DETAILS, LOCATION AND SPACING OF THE HOLD-DOWNS SHALL BE INDICATED.

THE TRANSFER OF LOAD FROM THE ANCHORAGES TO THE CORED SLAB UNIT SHALL BE DONE WHEN THE CONCRETE HAS REACHED A COMPRESSIVE STRENGTH OF NOT LESS THAN 4500 PSI.

ALL REINFORCING STEEL IN VERTICAL CONCRETE RAIL SHALL BE EPOXY COATED.

PRESTRESSING STRANDS SHALL BE CUT FLUSH WITH THE CORED SLAB UNIT ENDS.

APPLY EPOXY PROTECTIVE COATING TO CORED SLAB UNIT ENDS.

GROOVED CONTRACTION JOINTS, 1/2" IN DEPTH, SHALL BE TOOLED IN ALL EXPOSED FACES OF THE BARRIER RAIL IN ACCORDANCE WITH ARTICLE 825-10(B) OF THE STANDARD SPECIFICATIONS. THE CONTRACTION JOINTS SHALL BE LOCATED AT A SPACING OF 8 FT. TO 10 FT. BETWEEN EXPANSION JOINTS. NO CONTRACTION JOINTS WILL BE REQUIRED FOR SEGMENTS LESS THAN 10 FEET IN LENGTH.

TRANSVERSE POST TENSIONING OF THE CORED SLAB UNITS SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS, EXCEPT THAT THE STRANDS SHALL BE 0.6" Ø AND TENSIONED TO 43,950 POUNDS. IN ADDITION, MAINTAIN A SYMMETRIC TENSION FORCE BETWEEN EACH PAIR OF STRANDS IN THE DIAPHRAGM.

THE #4 S2 STIRRUPS MAY BE SHIFTED AS NECESSARY TO MAINTAIN 1" CLEAR TO THE GROUTED RECESS.

FOR VERTICAL CONCRETE BARRIER RAIL, SEE SPECIAL PROVISIONS.

CONCRETE INSERTS SHALL HAVE A MINIMUM WORKING LOAD SHEAR CAPACITY OF 2.5 KIPS.

THE 3/4" DIA. BOLTS, WASHERS AND CONCRETE INSERTS SHALL BE GALVANIZED IN ACCORDANCE WITH SECTION 1076 OF THE STANDARD SPECIFICATIONS.

THE BOLTS, WASHERS AND CONCRETE INSERTS ARE PROVIDED AS AN OPTION FOR THE CONTRACTOR TO ATTACH MATERIALS PREVENTING DEBRIS FROM DROPPING INTO THE WATER DURING CONSTRUCTION OF THE VERTICAL CONCRETE BARRIER RAIL.

UPON COMPLETION OF THE BRIDGE CONSTRUCTION, THE 3/4" DIA. BOLTS AND WASHER SHALL BE REMOVED AND THE CONCRETE INSERTS SHALL BE GROUTED.

THE COST OF THE CONCRETE INSERTS IN THE EXTERIOR CORED SLAB UNITS TO BE INCLUDED IN THE UNIT PRICE BID FOR PRESTRESSED CONCRETE CORED SLABS.

PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-

SHEET 4 OF 4

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

3'-0" X 2'-0"
PRESTRESSED
CONCRETE CORED
SLAB UNIT



John R. Duggins
11/25/09

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-8
1			3			TOTAL SHEETS
2			4			20

STD. NO. PCS3

ASSEMBLED BY: A. SORSENGINH DATE: 12-29-08
CHECKED BY: M. POOLE DATE: 7/09
DRAWN BY: WJH 4/89 REV. 10/17/00 RWW/LES
CHECKED BY: FCJ 5/89 REV. 7/10/01 RWW/LES
REV. 5/1/03 RWW/JTE

NOTES

THE GUARDRAIL ANCHOR ASSEMBLY SHALL CONSIST OF A 1/4" HOLD DOWN PLATE AND 7 - 7/8" Ø BOLTS WITH NUTS AND WASHERS.

THE HOLD-DOWN PLATE SHALL CONFORM TO AASHTO M270 GRADE 36. AFTER FABRICATION, THE HOLD-DOWN PLATE SHALL BE HOT-DIP GALVANIZED IN ACCORDANCE WITH AASHTO M111.

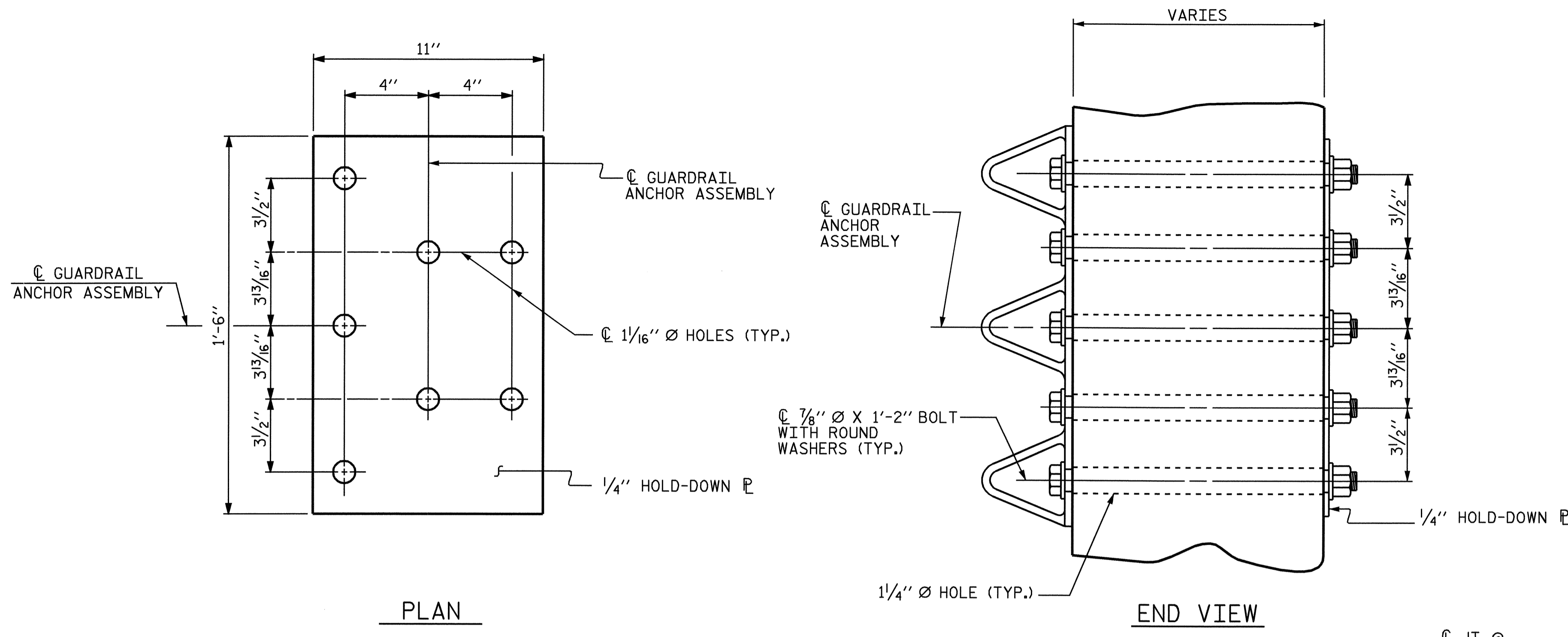
BOLTS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A307 AND NUTS SHALL CONFORM TO THE REQUIREMENTS OF AASHTO M291. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED. AT THE CONTRACTOR'S OPTION, STAINLESS STEEL BOLTS, NUTS AND WASHERS MAY BE USED AS AN ALTERNATE FOR THE 7/8" Ø GALVANIZED BOLTS, NUTS AND WASHERS. THEY SHALL CONFORM TO OR EXCEED THE MECHANICAL REQUIREMENTS OF ASTM A307. THE USE OF THIS ALTERNATE SHALL BE APPROVED BY THE ENGINEER.

AFTER INSTALLATION, THE EXPOSED THREAD OF THE BOLT SHALL BE BURRED WITH A SHARP POINTED TOOL.

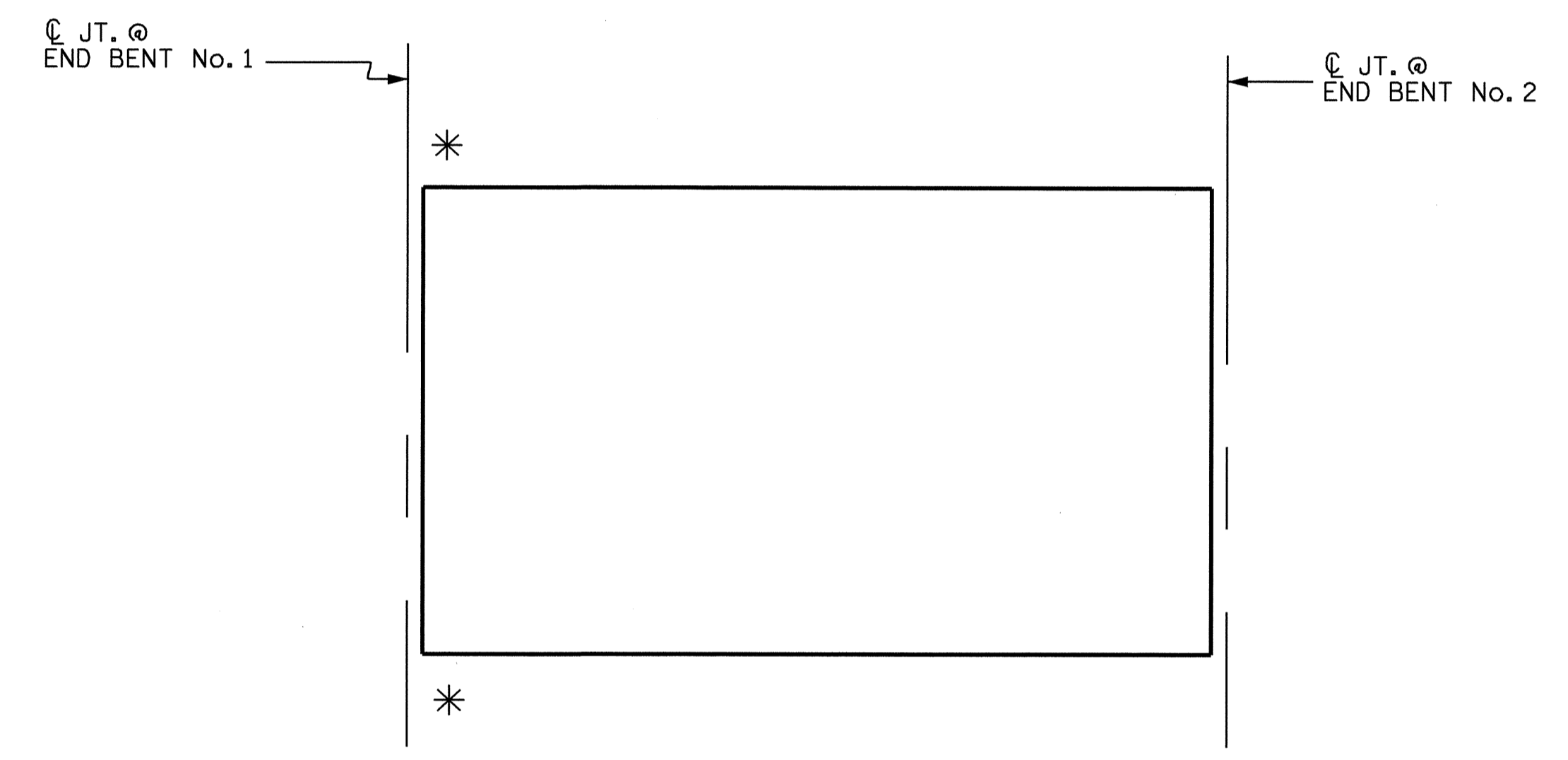
THE COST OF THE GUARDRAIL ANCHOR ASSEMBLIES WITH BOLTS, NUTS AND WASHERS COMPLETE IN PLACE, SHALL BE INCLUDED IN THE VARIOUS PAY ITEMS.

THE VERTICAL REINFORCING BARS MAY BE SHIFTED SLIGHTLY IN THE BARRIER RAIL TO CLEAR ASSEMBLY BOLTS.

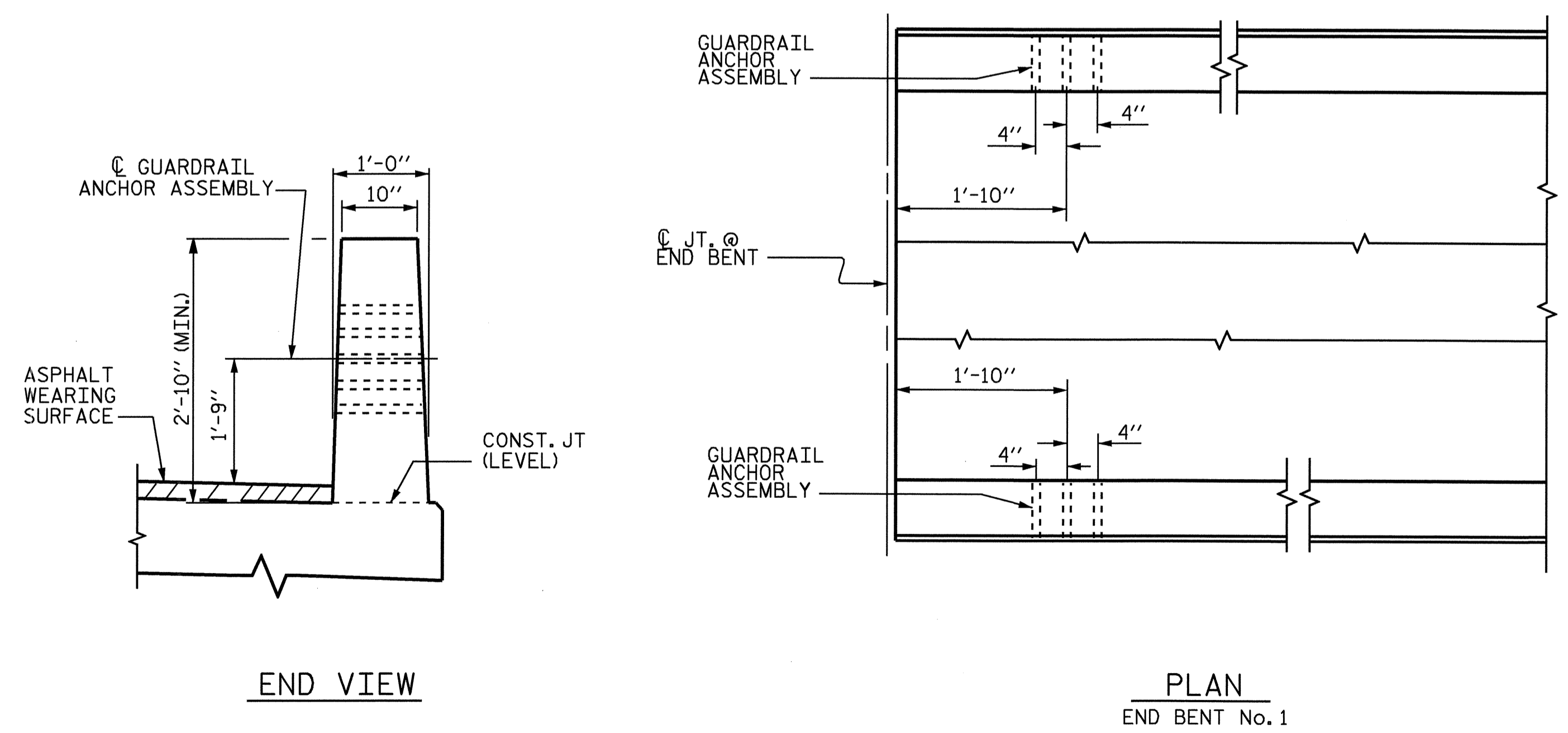
THE 1/4" Ø HOLES SHALL BE FORMED OR DRILLED WITH A CORE BIT. IMPACT TOOLS WILL NOT BE PERMITTED. ANY CONCRETE DAMAGED BY THIS WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE ENGINEER.



PLAN
END VIEW
GUARDRAIL ANCHOR ASSEMBLY DETAILS

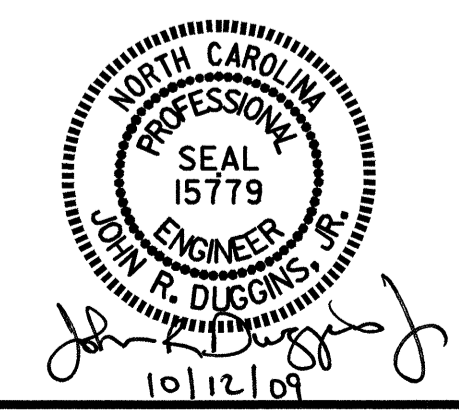


SKETCH SHOWING POINTS OF ATTACHMENT
* LOCATION OF GUARDRAIL ATTACHMENT



END VIEW
PLAN
END BENT No. 1
LOCATION OF GUARDRAIL ANCHOR AT END POST

PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-



STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
**GUARDRAIL ANCHORAGE
DETAILS FOR
VERTICAL CONCRETE
BARRIER RAILS**

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			S-9
2			4			TOTAL SHEETS 20

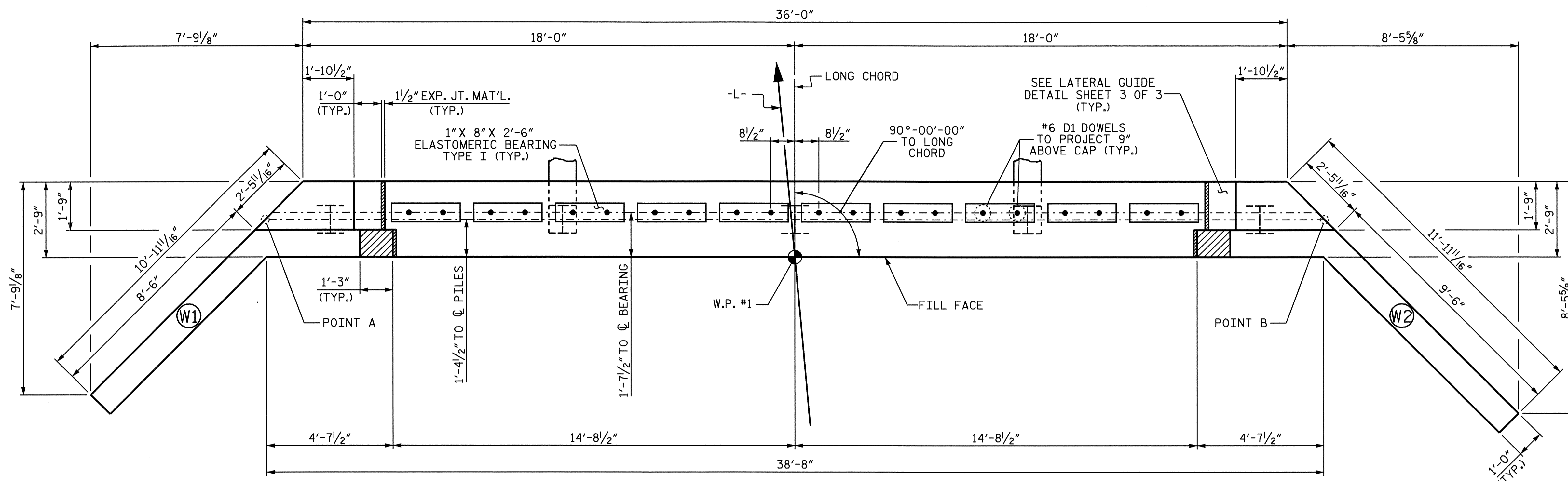
DRAWN BY : D. HODGE DATE : 10/09
CHECKED BY : J. R. DUGGINS DATE : 10/09

NOTES

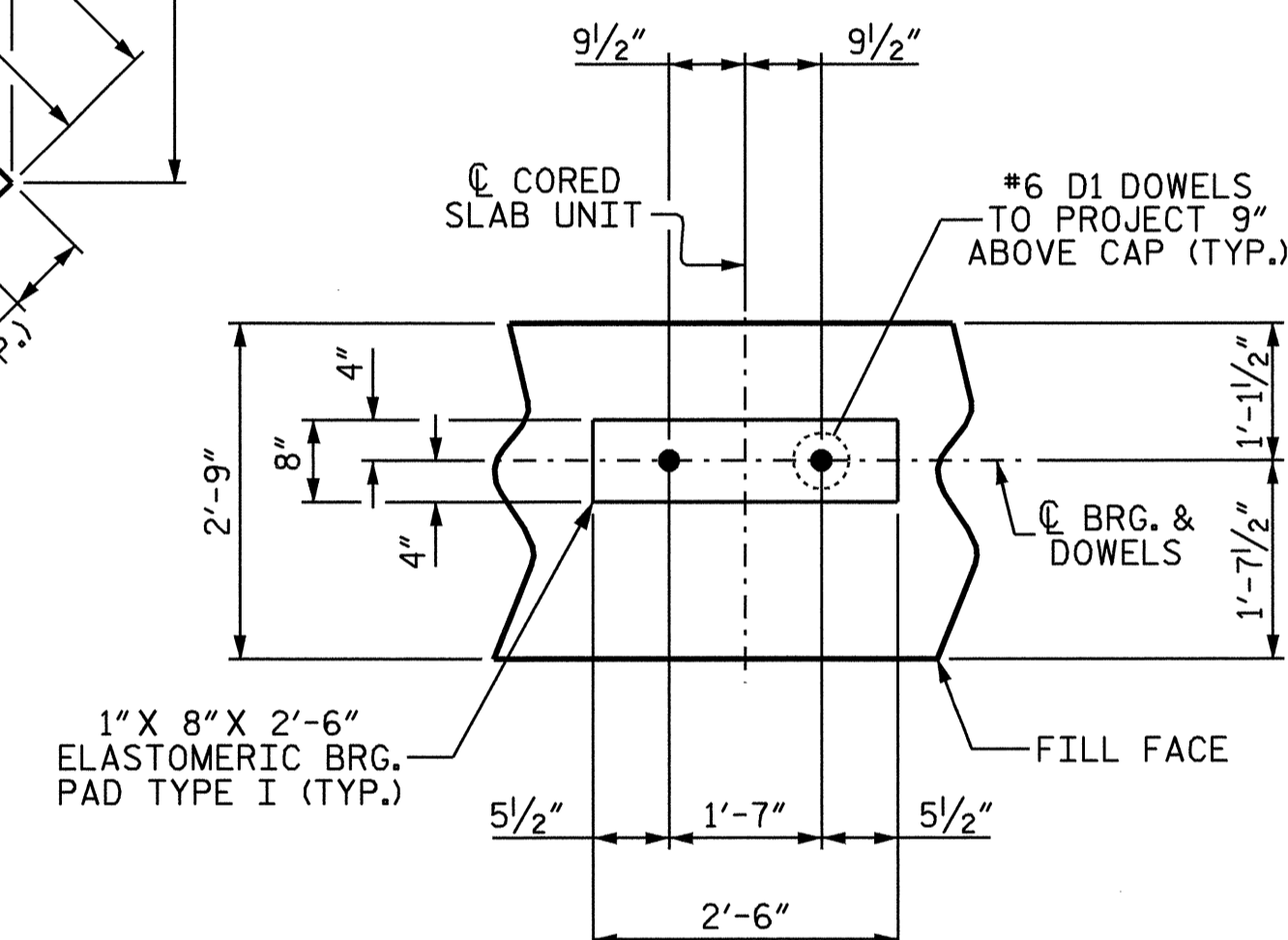
STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

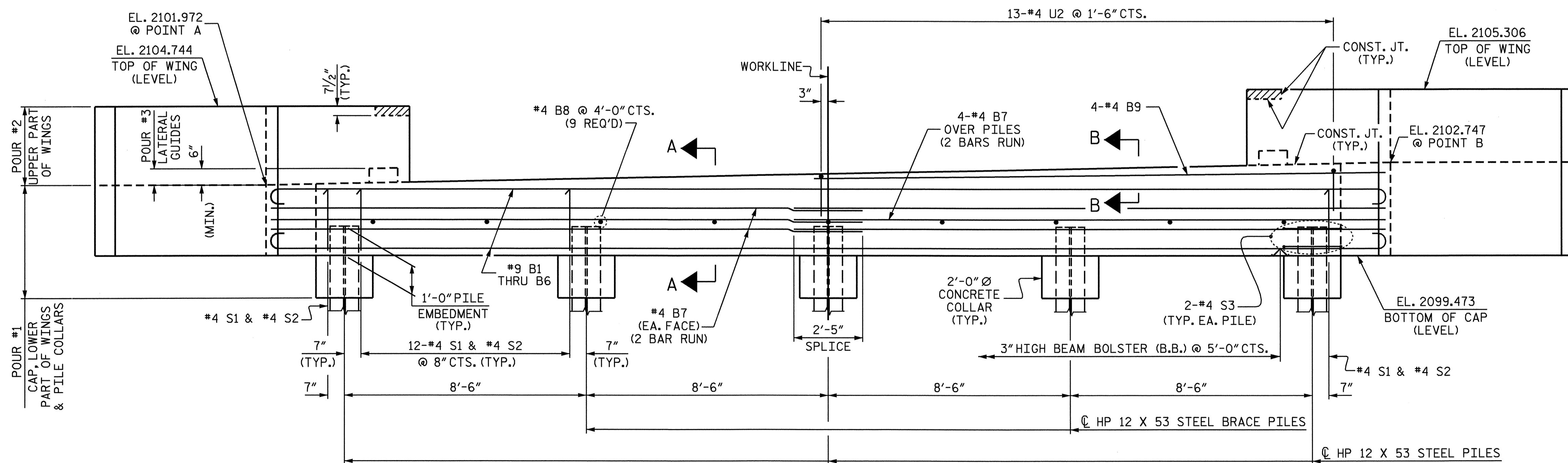
THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE RAILS ARE CAST IF SLIP FORMING IS USED.



PLAN



BEARING DETAIL
(TYP. EA. CORED SLAB UNIT)



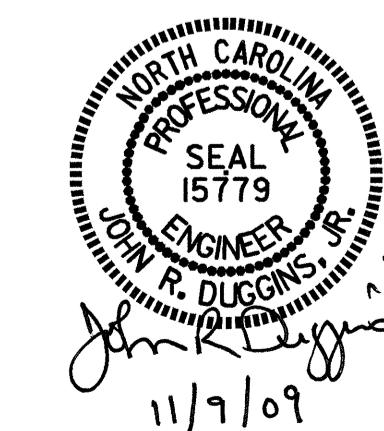
ELEVATION

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 1 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

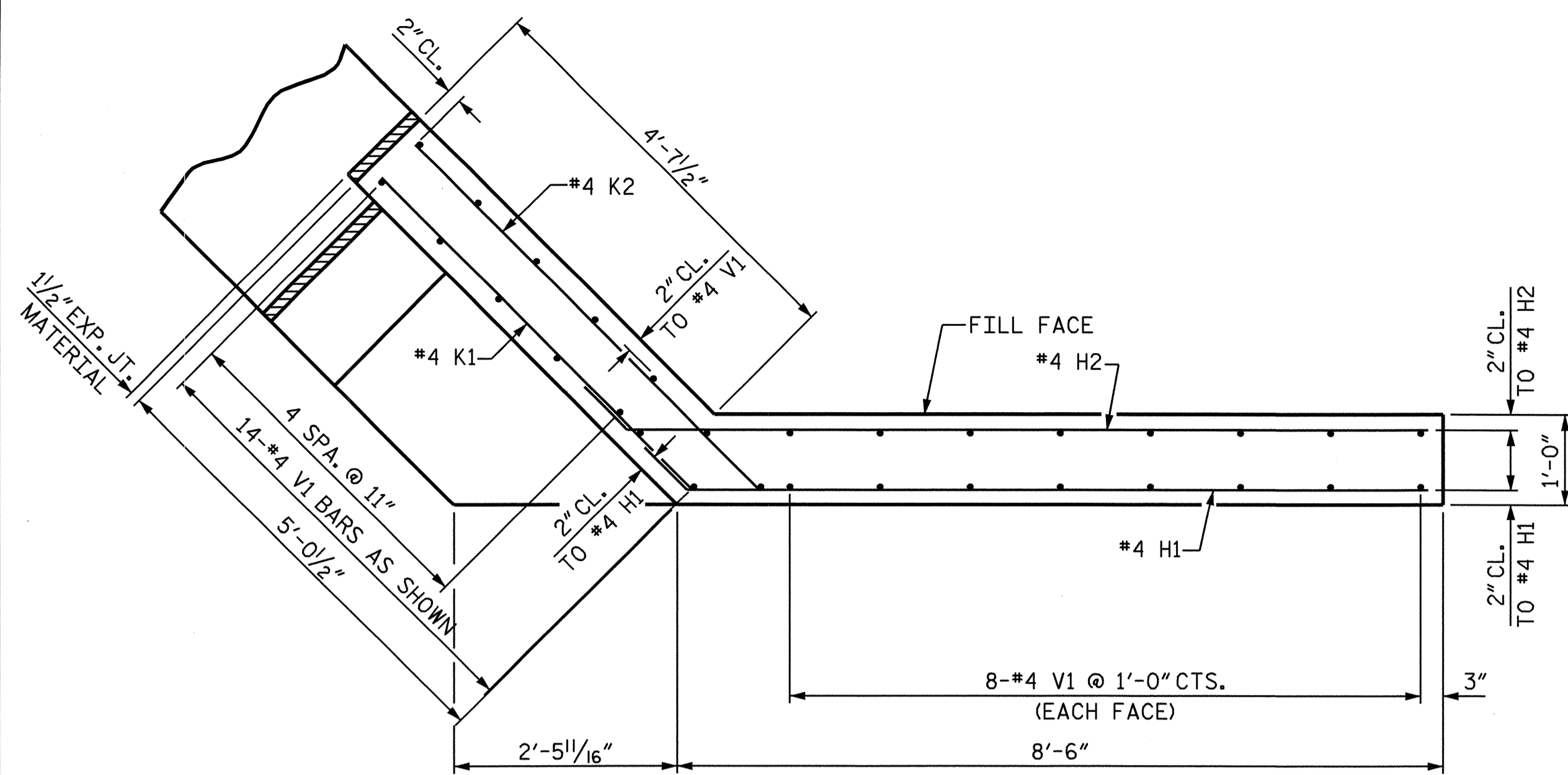
SUBSTRUCTURE
 END BENT #1



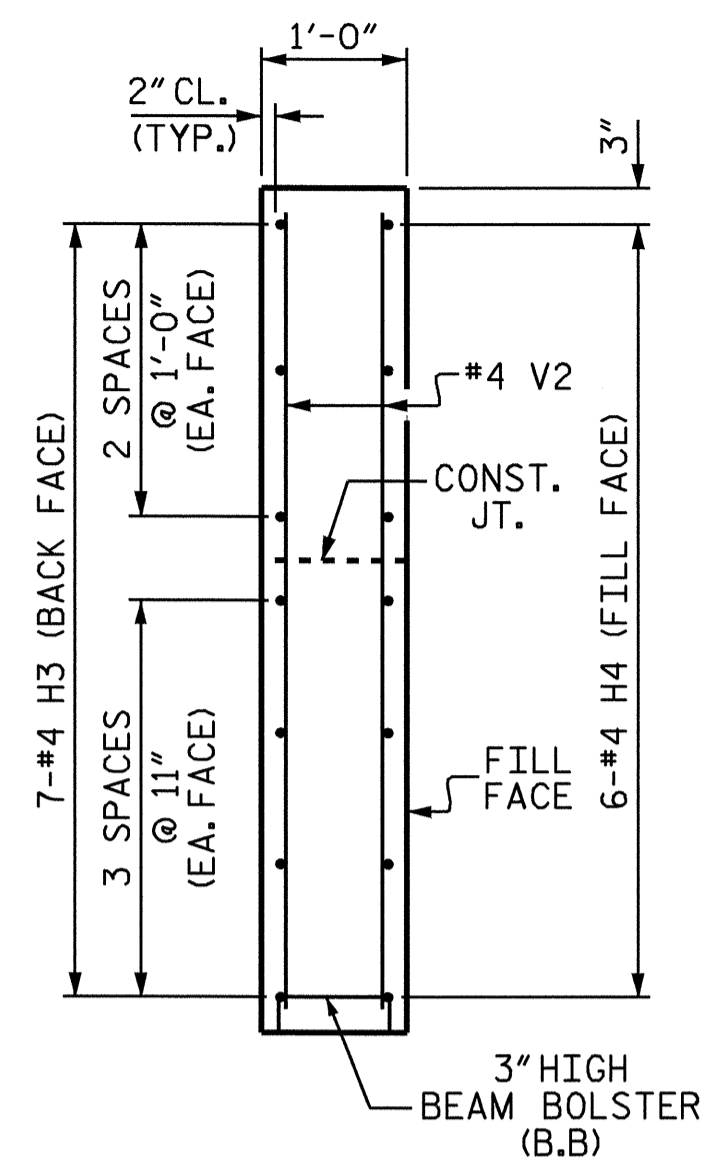
DRAWN BY : A. SORSENGINH DATE : 8/28/09
 CHECKED BY : H. KIM DATE : 9/09

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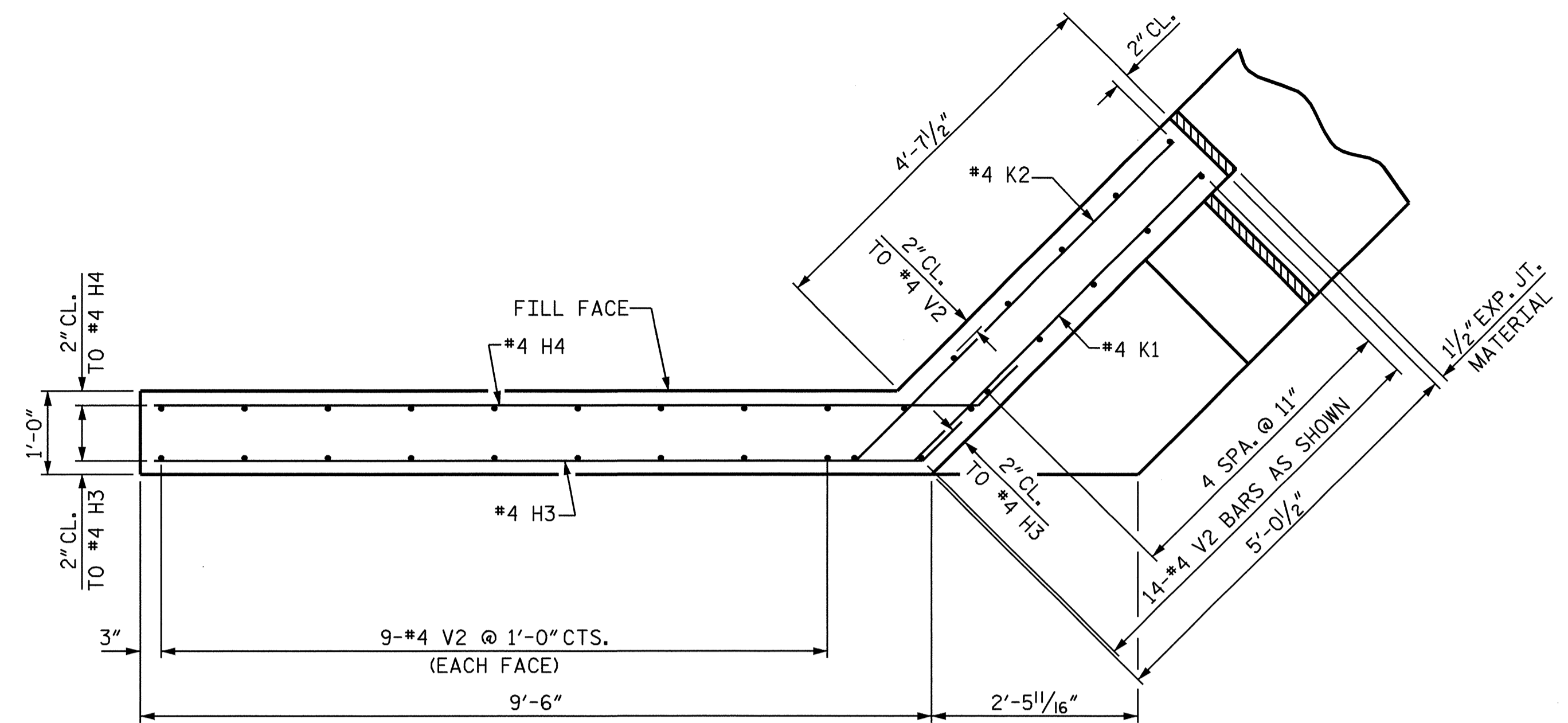
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NO.	BY:	DATE:	NO.	BY:	DATE:	
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2			4			



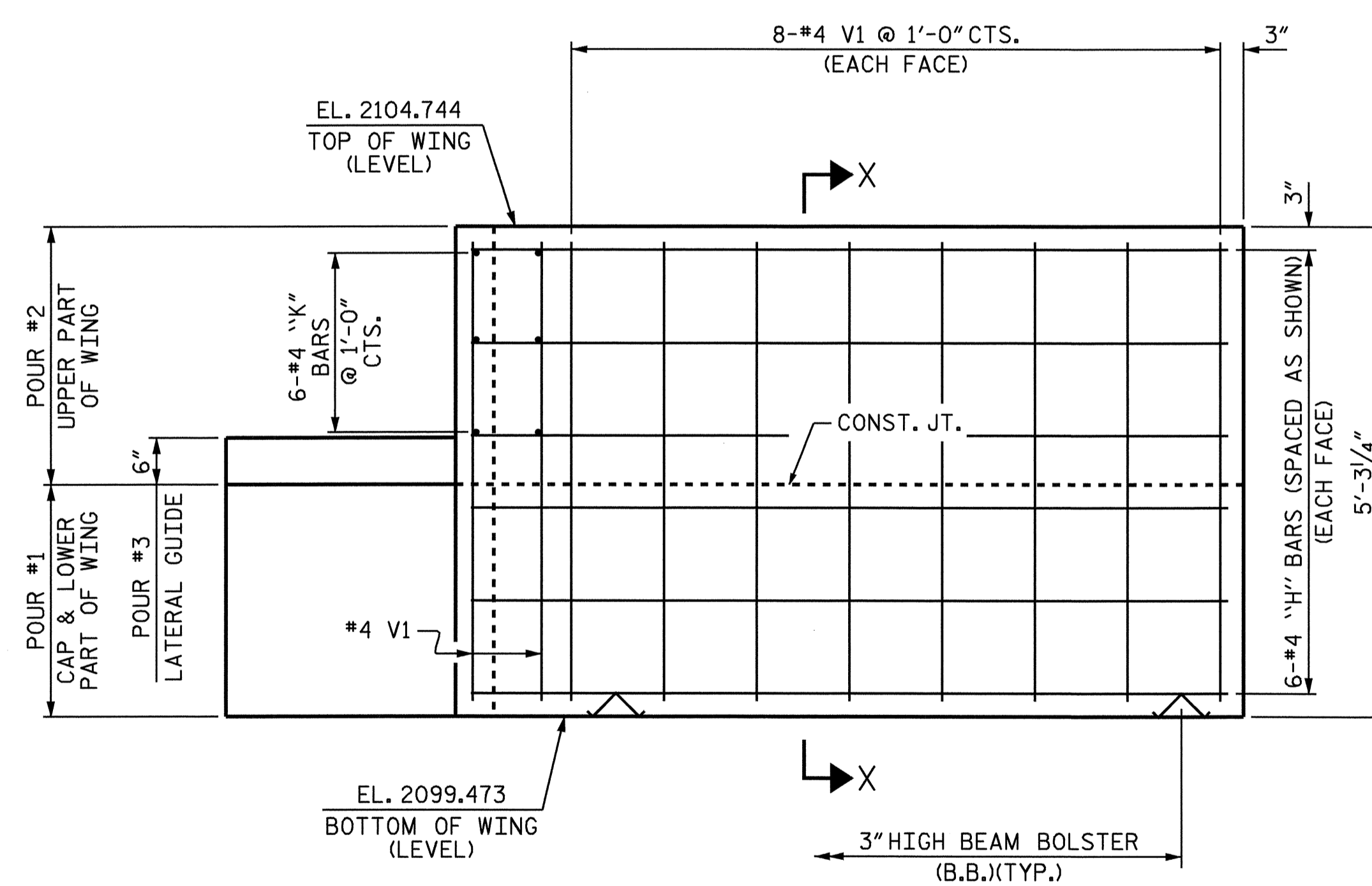
PLAN OF LEFT WING (W1)



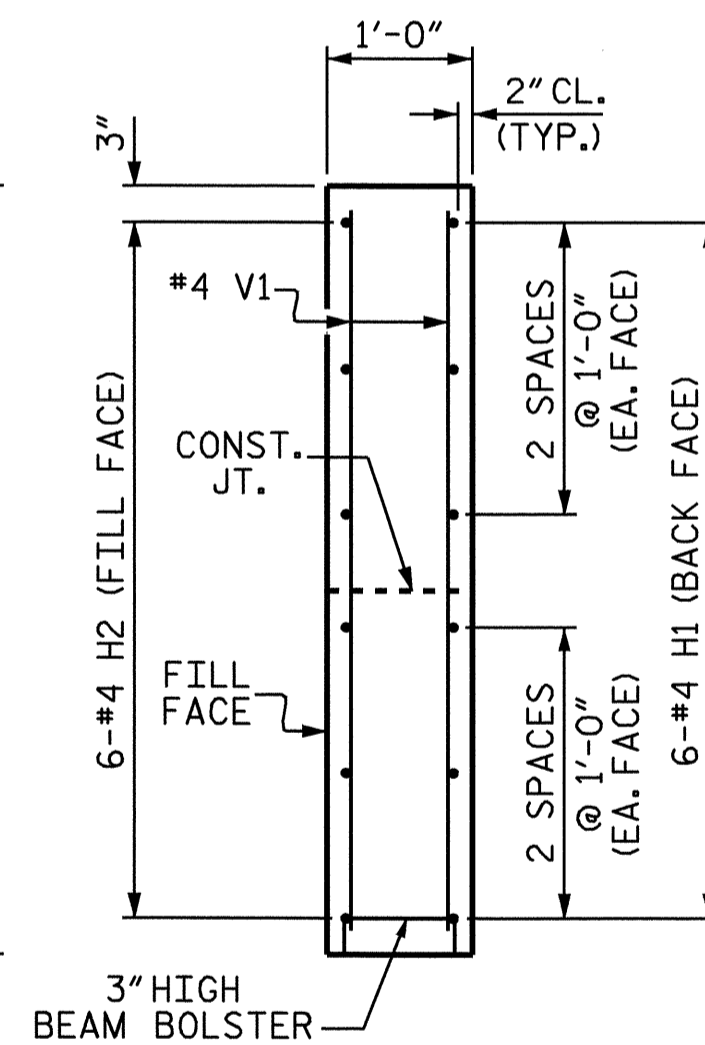
SECTION Y-Y



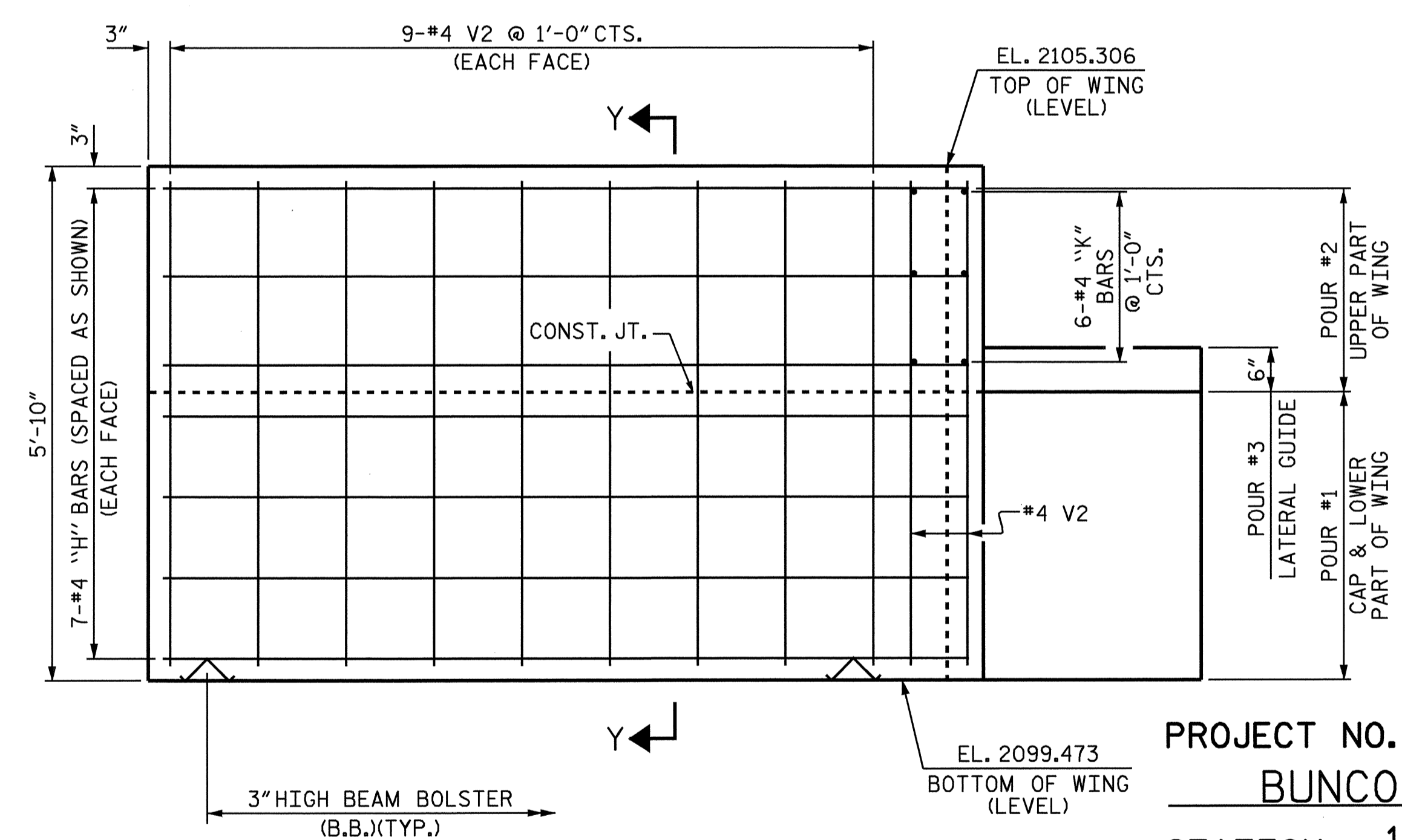
PLAN OF RIGHT WING (W2)



ELEVATION OF LEFT WING (W1)



SECTION X-X



ELEVATION OF RIGHT WING (W2)

PROJECT NO. B-4446
 BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 2 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

SUBSTRUCTURE
 END BENT #1

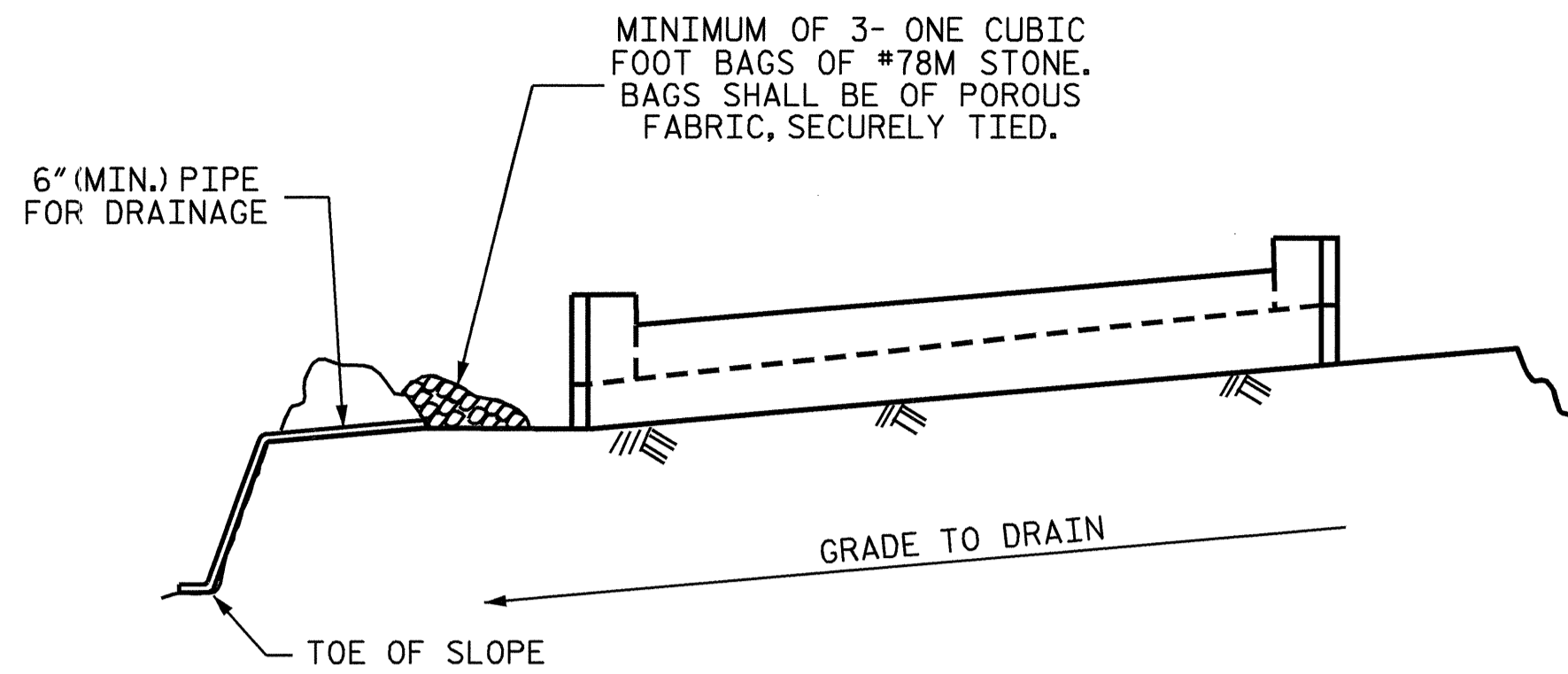


10/22/09

DRAWN BY: A. SORSENGINH DATE: 8/28/09
 CHECKED BY: H. KIM DATE: 9/09

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REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	3-11
1			3			TOTAL SHEETS
2			4			20

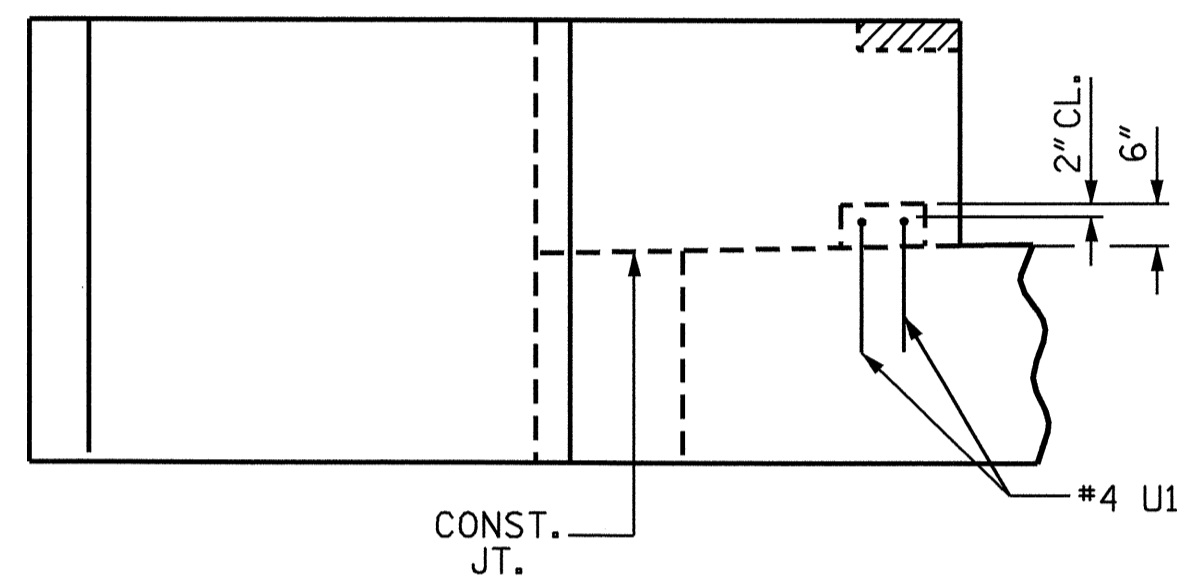
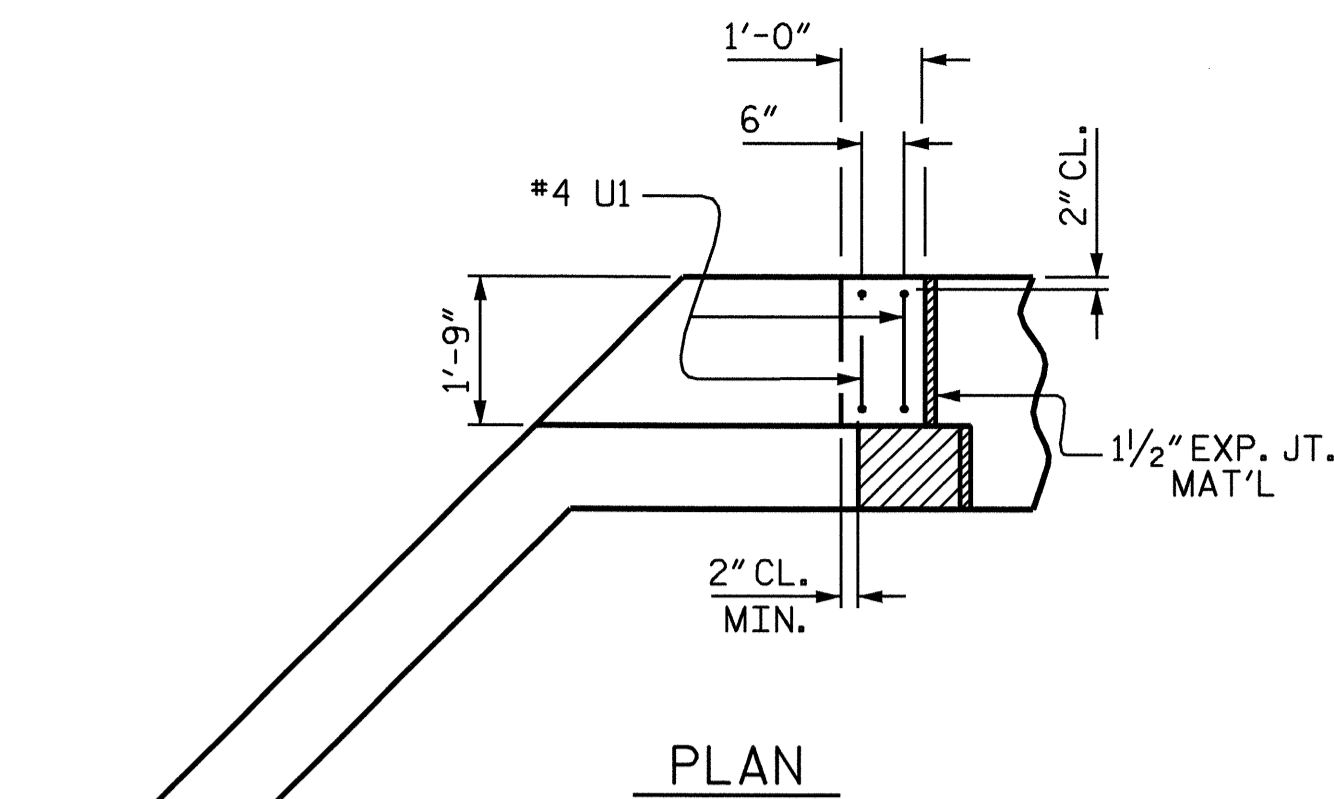


BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

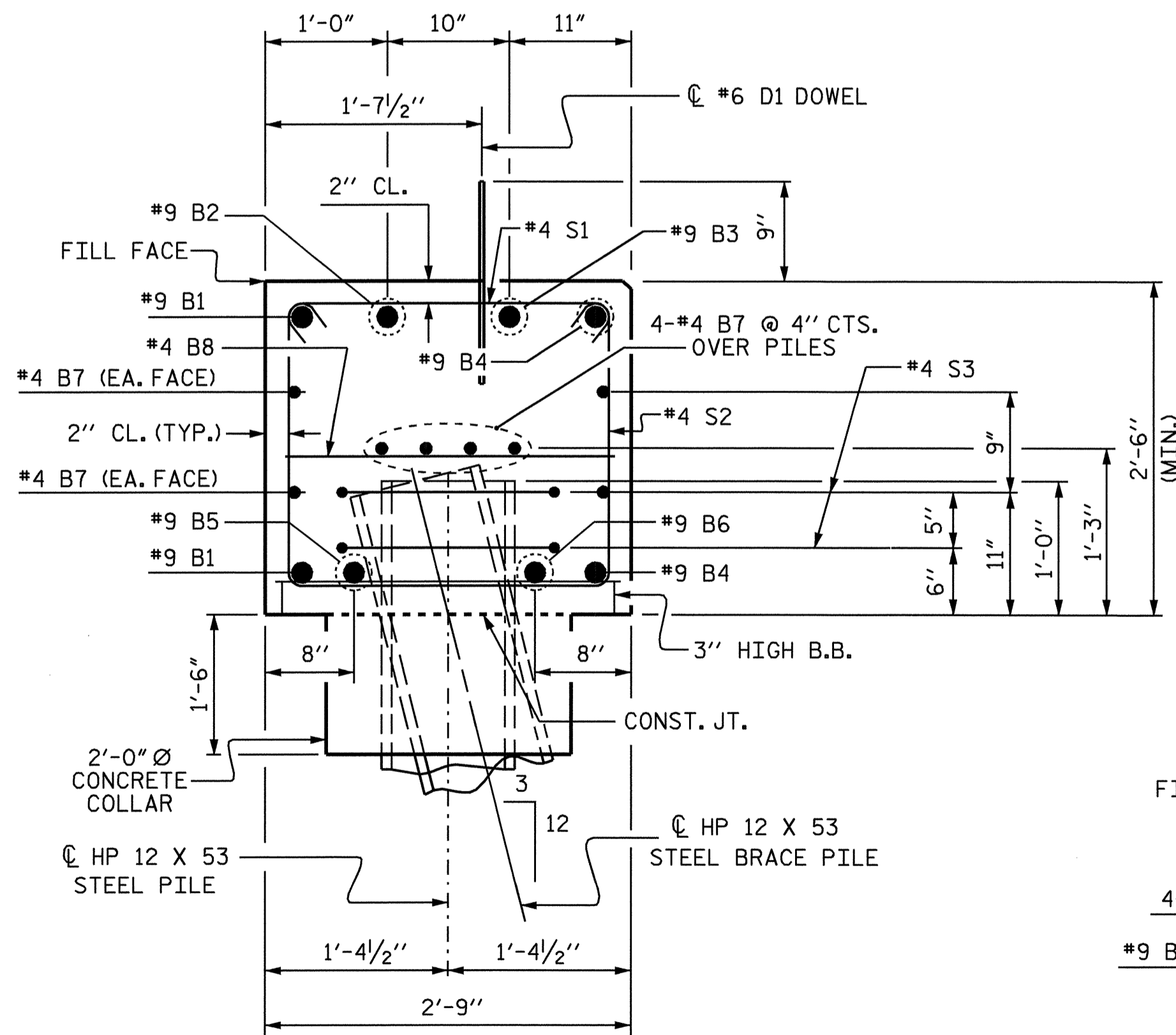
BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

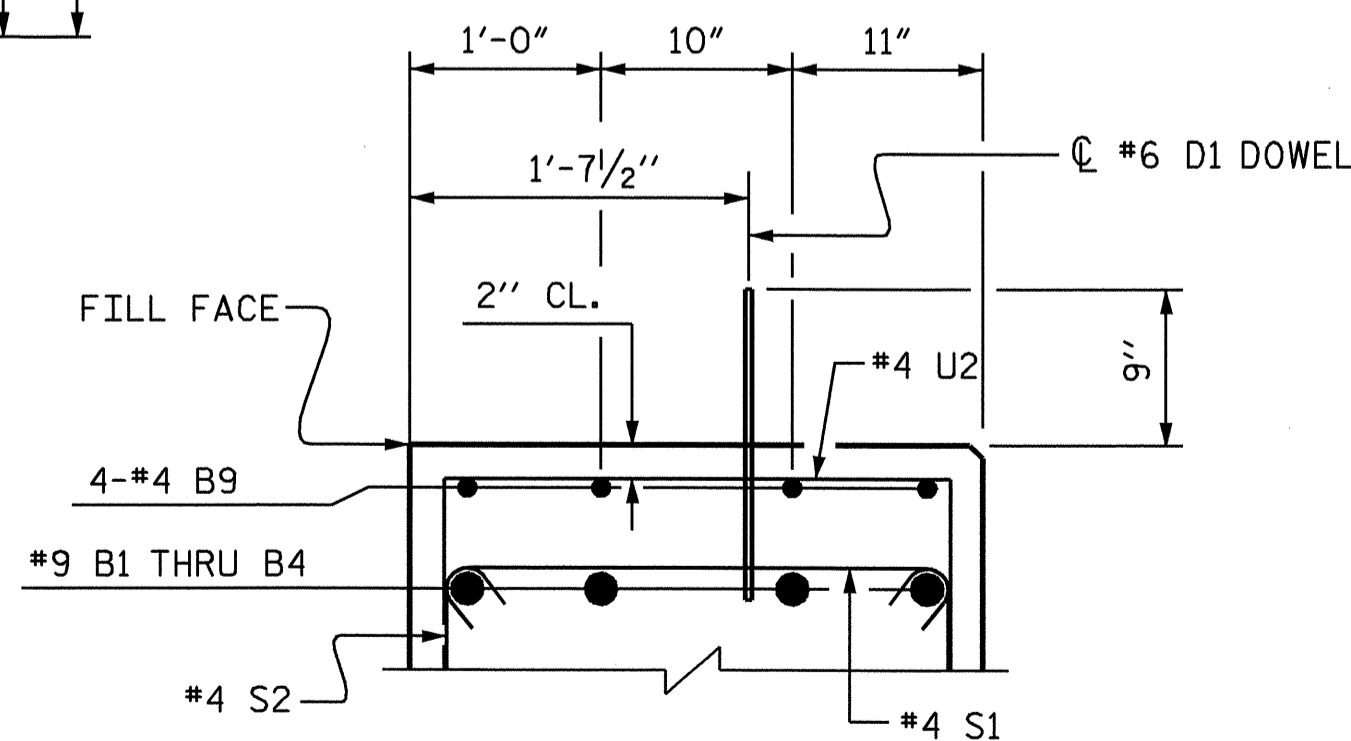
TEMPORARY DRAINAGE AT END BENT



LATERAL GUIDE (EACH END SIMILAR)

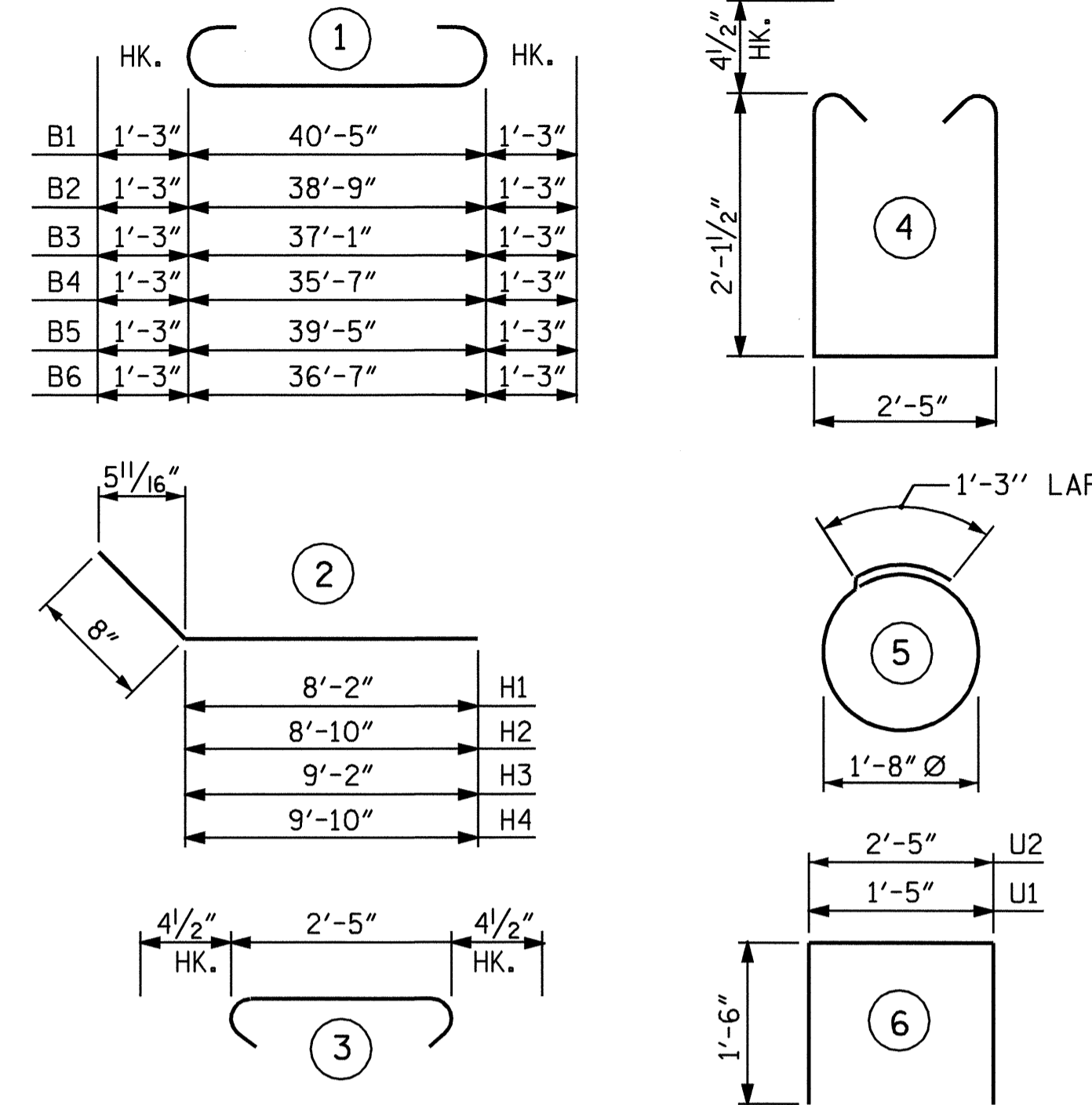


SECTION A-A



SECTION B-B

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

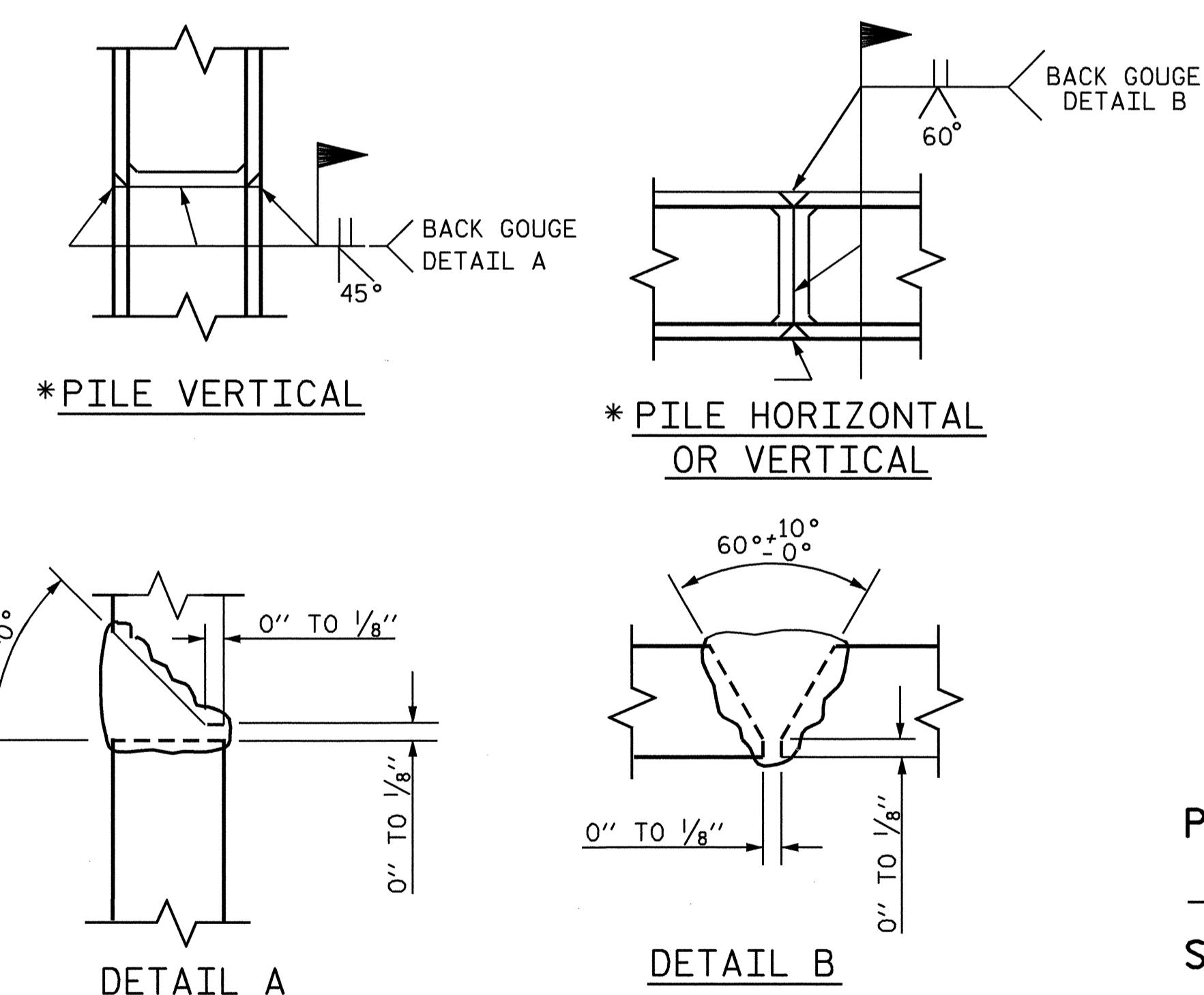
BILL OF MATERIAL

END BENT #1					
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	42'-11"	292
B2	1	#9	1	41'-3"	140
B3	1	#9	1	39'-7"	135
B4	2	#9	1	38'-1"	259
B5	1	#9	1	41'-11"	143
B6	1	#9	1	39'-1"	133
B7	16	#4	STR	21'-7"	231
B8	9	#4	STR	2'-5"	15
B9	4	#4	STR	20'-10"	56
D1	20	#6	STR	1'-6"	45
H1	6	#4	2	8'-10"	35
H2	6	#4	2	9'-6"	38
H3	7	#4	2	9'-10"	46
H4	7	#4	2	10'-6"	49
K1	6	#4	STR	4'-10"	19
K2	6	#4	STR	5'-4"	21
S1	50	#4	3	3'-2"	106
S2	50	#4	4	7'-5"	248
S3	10	#4	5	6'-6"	43
U1	4	#4	6	4'-5"	12
U2	13	#4	6	5'-5"	47
V1	30	#4	STR	4'-11"	99
V2	32	#4	STR	5'-6"	118

REINFORCING STEEL = 2330 LBS

CLASS A CONCRETE BREAKDOWN	
POUR #1 CAP, LOWER PART OF WINGS & COLLARS	C.Y. 14.0
POUR #2 UPPER PART OF WINGS	C.Y. 2.7
POUR #3 LATERAL GUIDES	C.Y. 0.1
TOTAL CLASS A CONCRETE	C.Y. 16.8

HP 12 X 53 STEEL PILES	NO. 5	LIN. FT.	150
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PILE SPLICE DETAILS

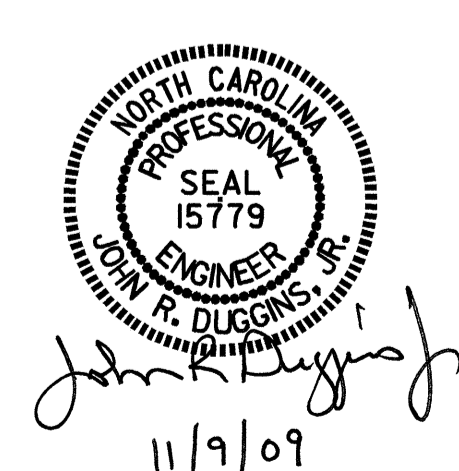
* POSITION OF PILE DURING WELDING.

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BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

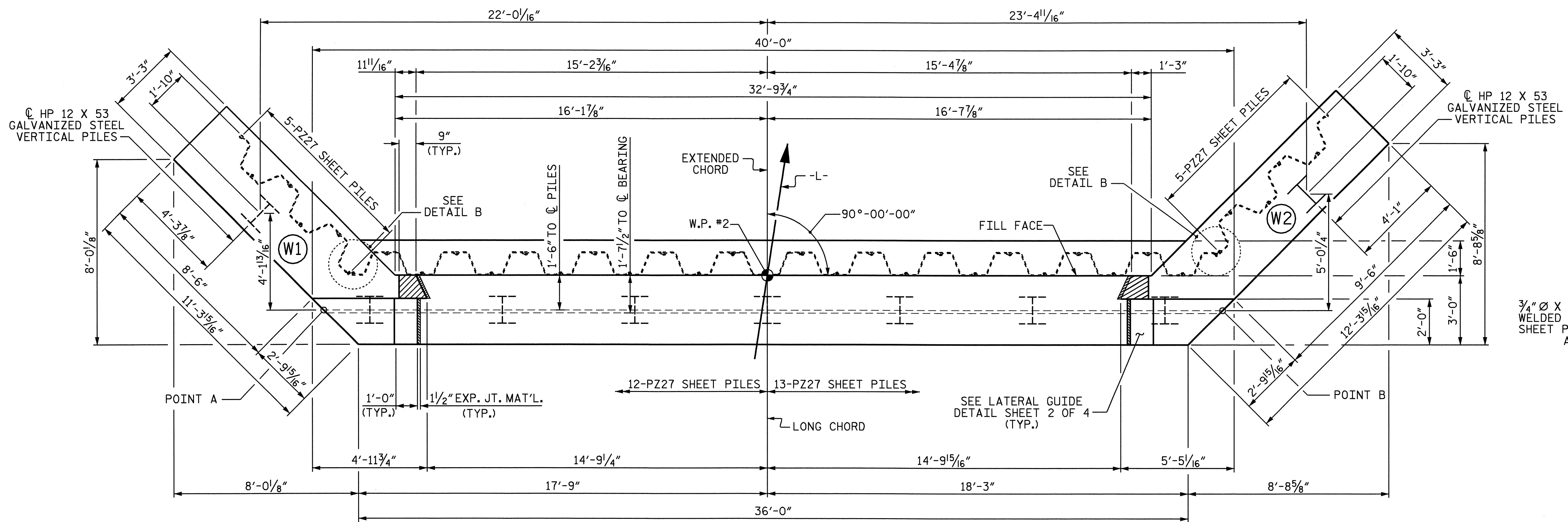
SUBSTRUCTURE
 END BENT #1



DRAWN BY: A. SORSENGINH DATE: 8/28/09
 CHECKED BY: H. KIM DATE: 9/09

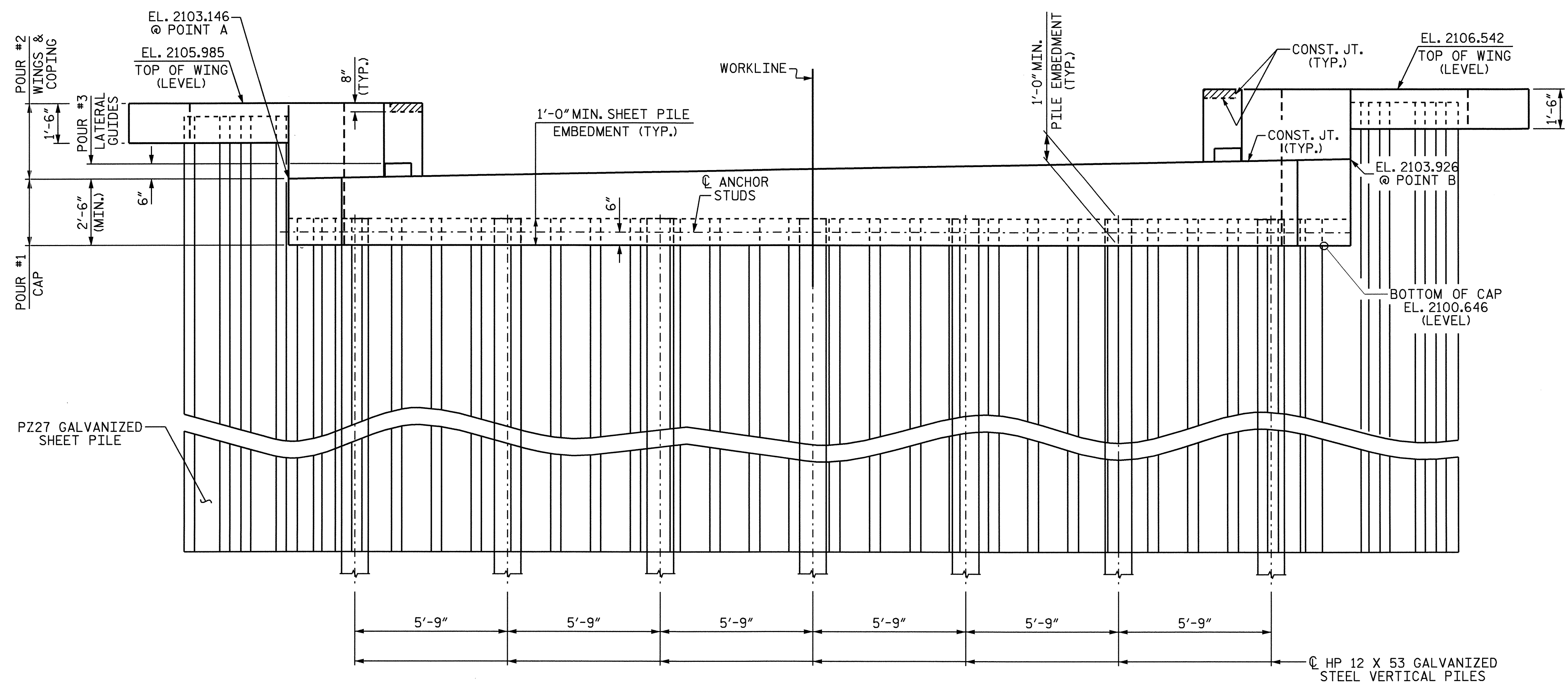
REVISIONS				SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

TOTAL SHEETS: 20



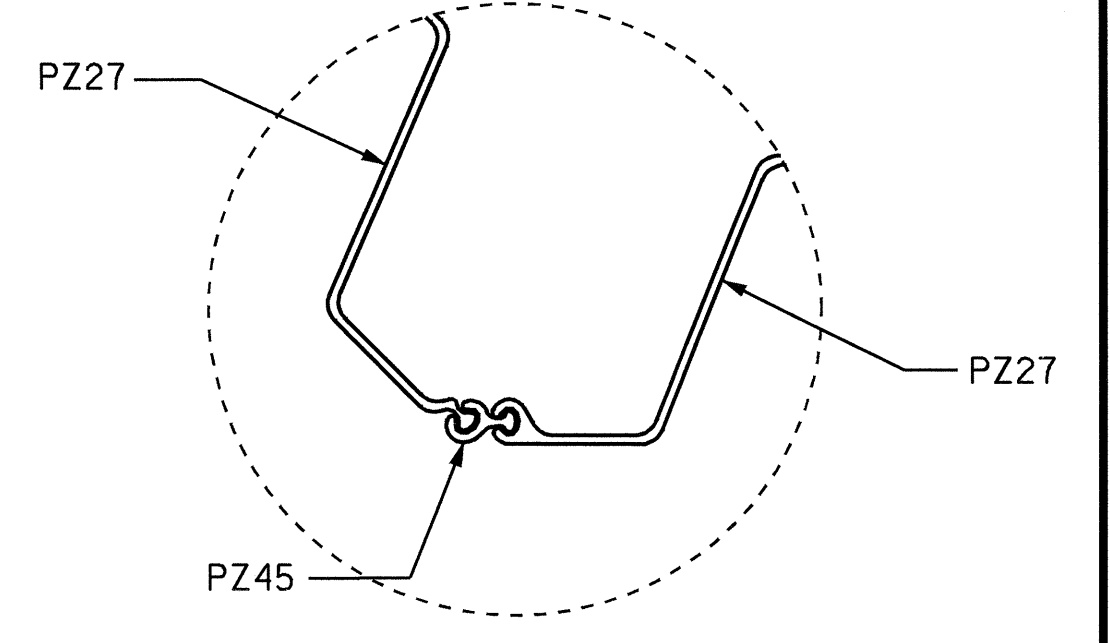
PLAN

(FOR CLARITY, BEARING PADS & DOWELS NOT SHOWN IN PLAN VIEW)

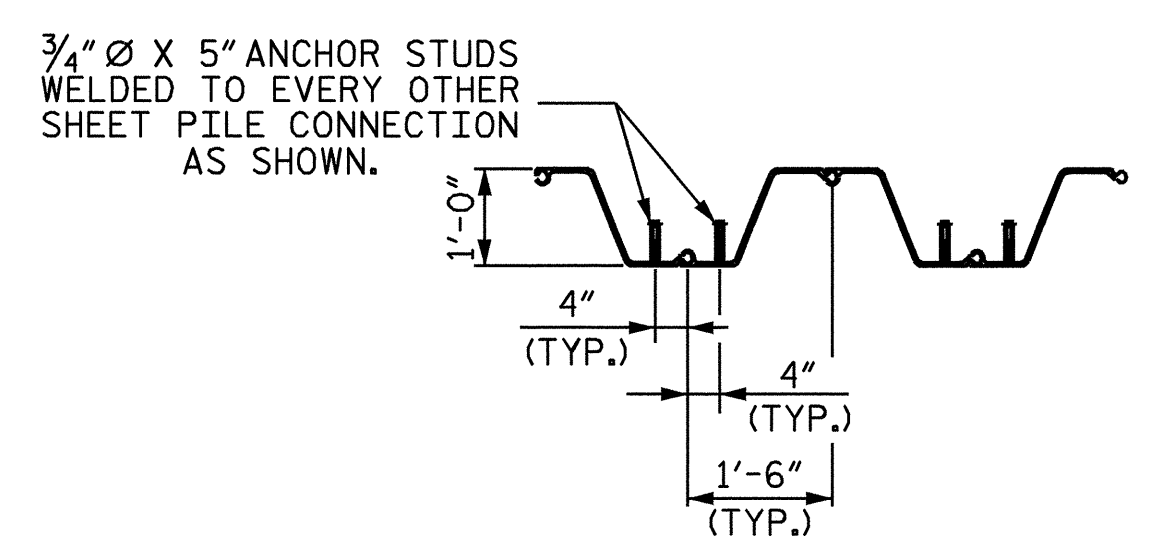


ELEVATION

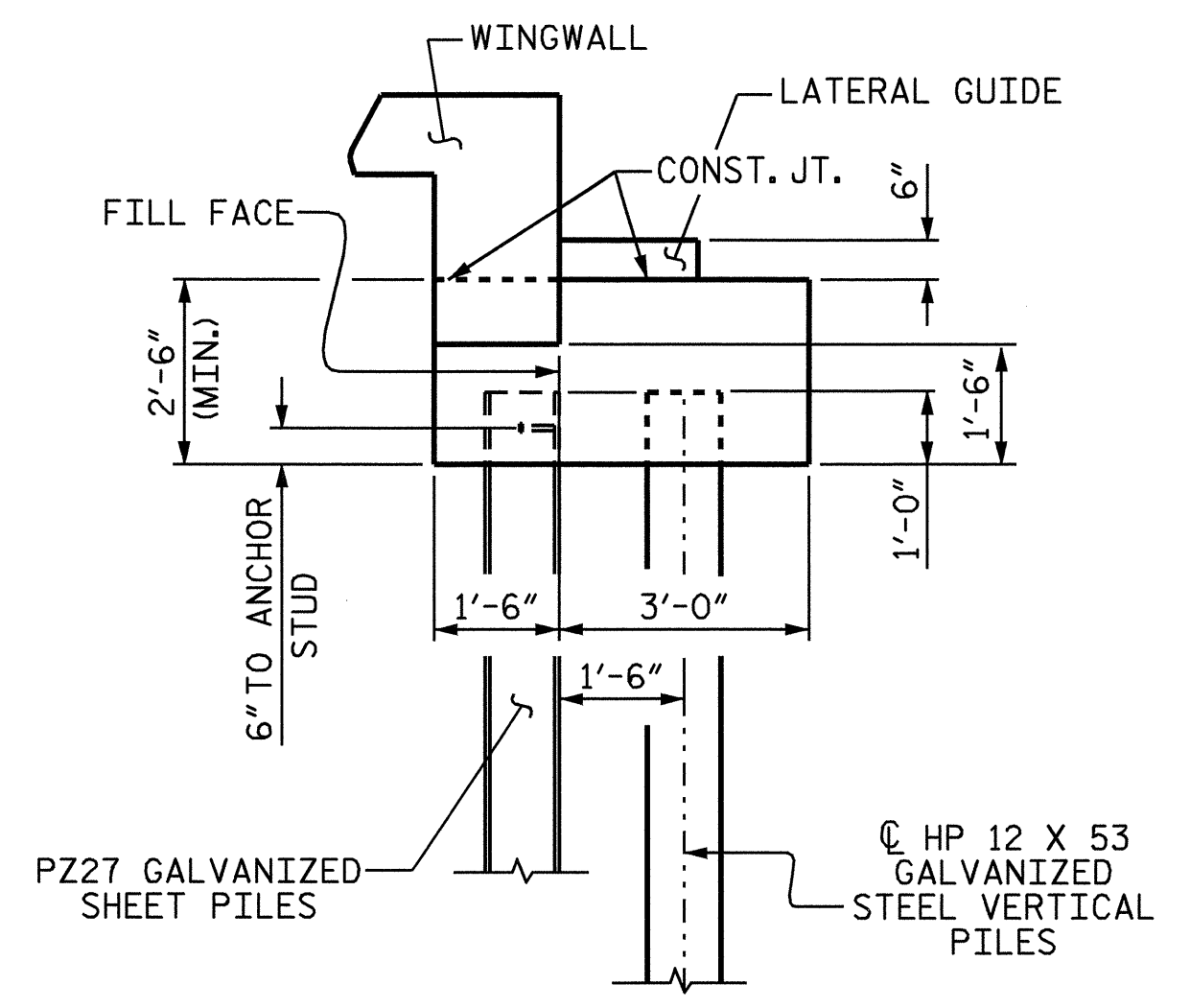
(FOR REINFORCING STEEL IN CAP, SEE SHEET 2 OF 4)



DETAIL B



ANCHOR STUD DETAIL



END ELEVATION

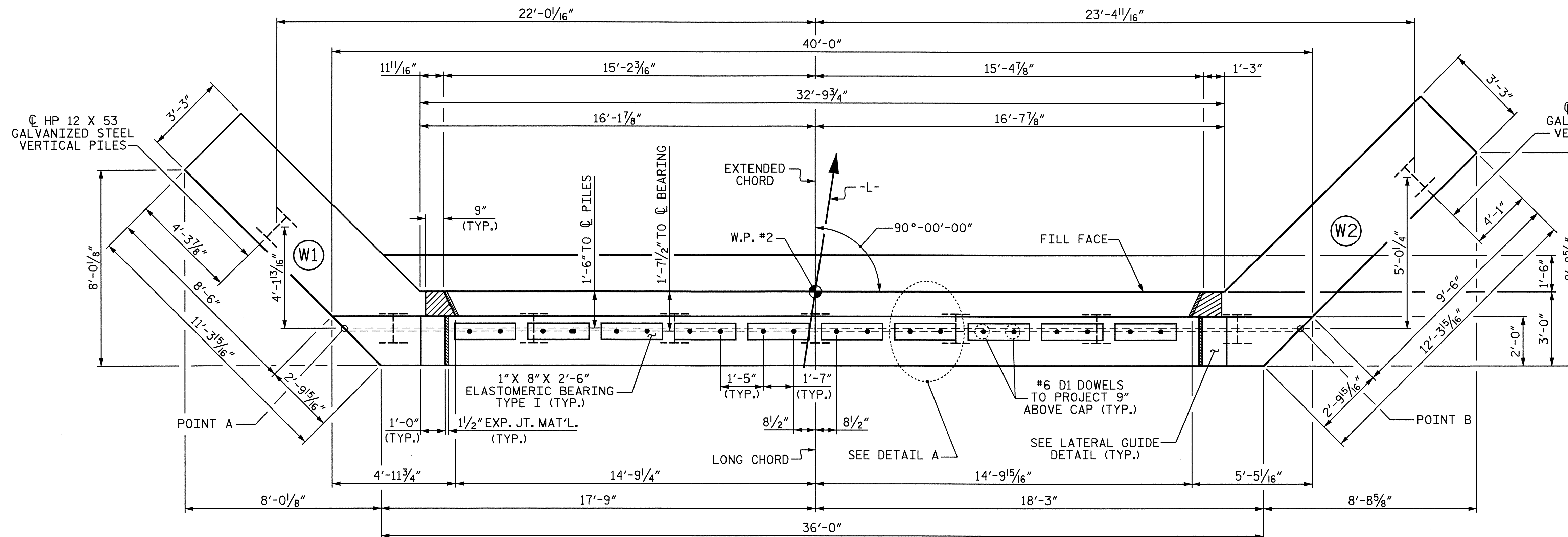
PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 1 OF 4

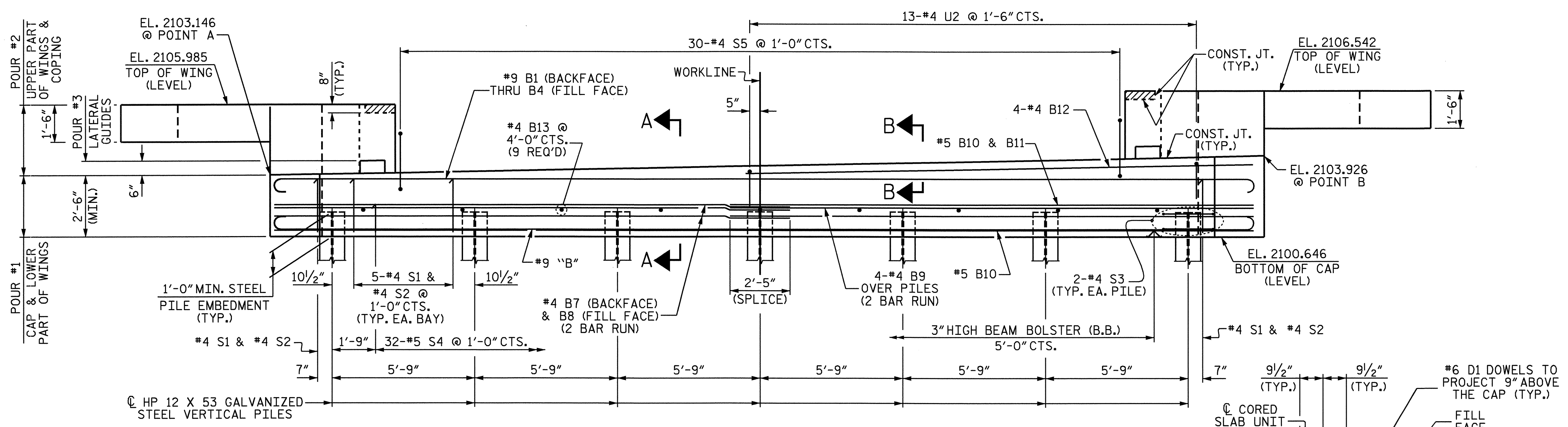
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					
SUBSTRUCTURE END BENT #2					
SHEET NO. S-13					
TOTAL SHEETS 20					
REVISIONS					
NO.	BY:	DATE:	NO.	BY:	DATE:
1			3		
2			4		

John R. Diggins, Jr.
 11/9/09
 NORTH CAROLINA
 PROFESSIONAL
 SEAL
 15779
 ENGINEER
 JOHN R. DIGGINS, JR.

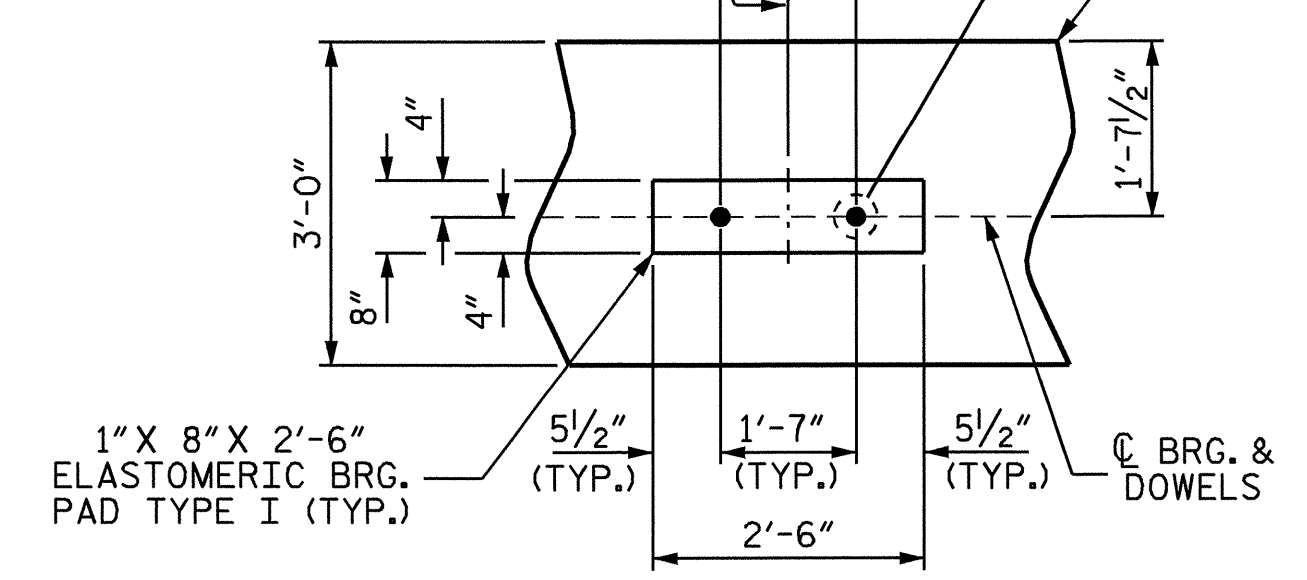
DRAWN BY: A. SORSENGINH DATE: 8/28/09
 CHECKED BY: H. KIM DATE: 9/09



PLAN
(FOR CLARITY, SHEET PILES NOT SHOWN)



ELEVATION
(FOR SECTIONS A-A & B-B, SEE SHEET 4 OF 4)
(FOR CLARITY, SHEET PILES NOT SHOWN)



DETAIL A

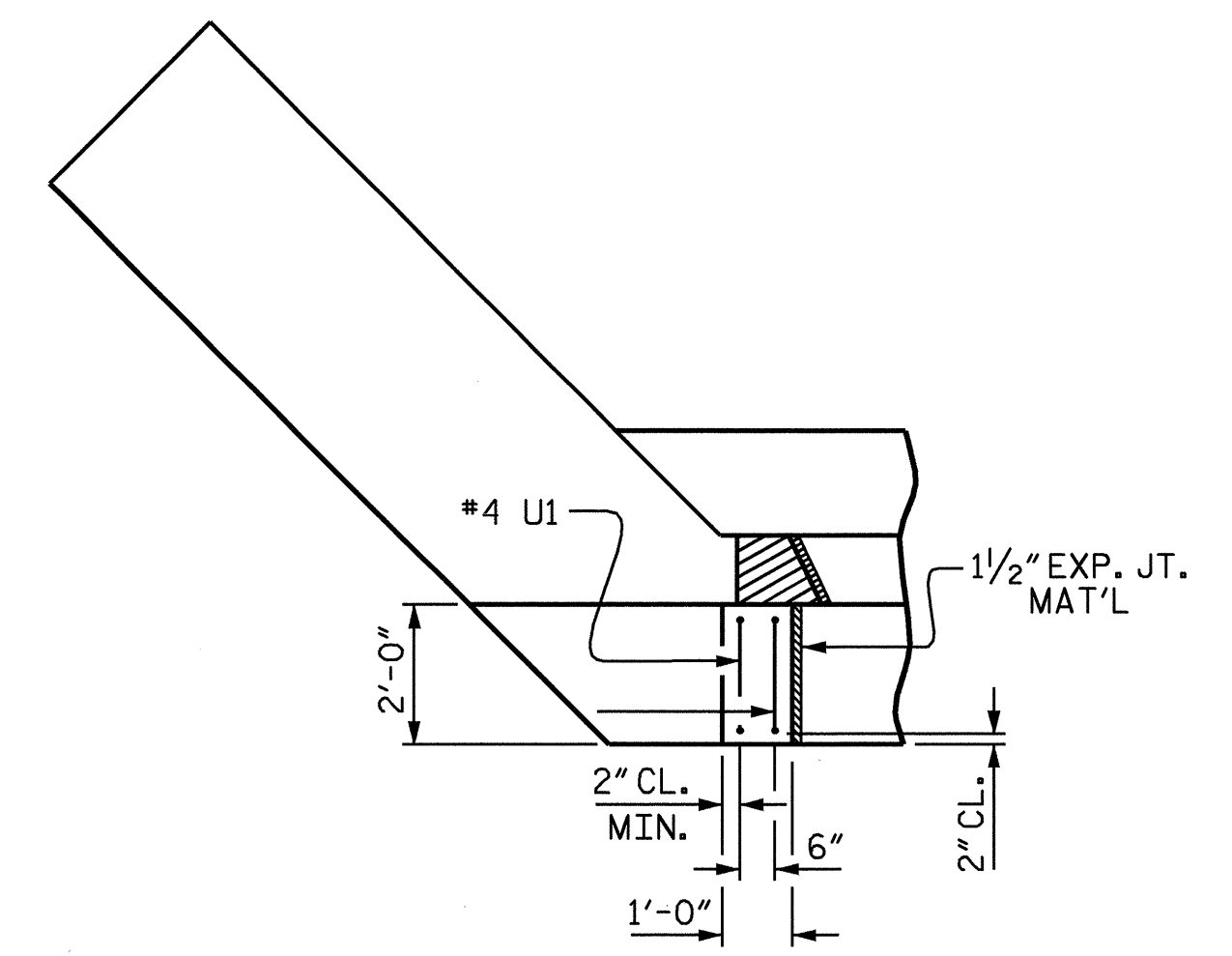
NOTES

STIRRUPS IN CAP MAY BE SHIFTED AS NECESSARY TO CLEAR #6 D1 DOWELS.

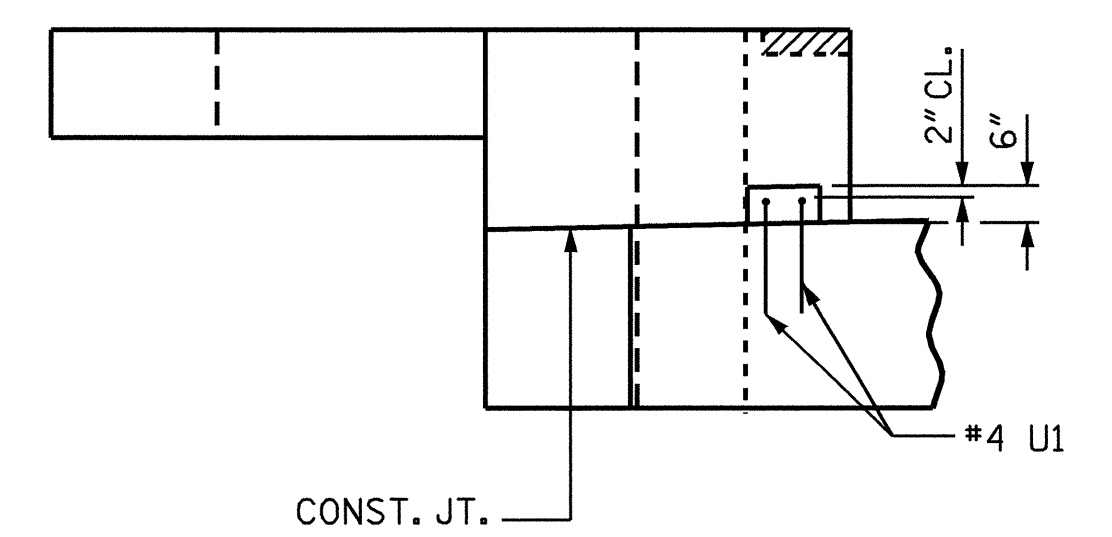
THE CONTRACTOR SHALL PROVIDE FOR INSTALLATION OF THE 4" DIAMETER DRAIN PIPE THROUGH THE WING SHEET PILES AS REQUIRED FOR SUB-REGIONAL TIER BRIDGE APPROACH FILLS, SEE THE ROADWAY PLANS.

THE LATERAL GUIDE AT EACH END OF THE CAP IS NOT TO BE POURED UNTIL AFTER CORED SLAB UNITS ARE IN PLACE.

THE CONCRETE IN THE SHADED AREA OF THE WING SHALL BE POURED AFTER THE RAILS ARE CAST IF SLIP FORMING IS USED.



PLAN



ELEVATION

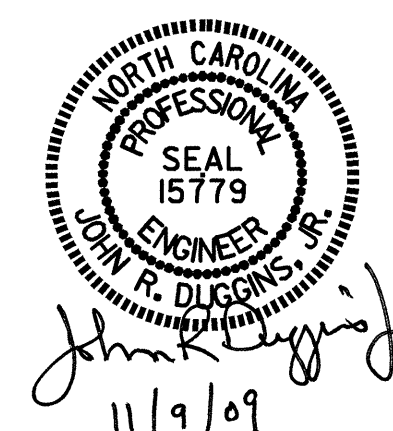
LATERAL GUIDE
(EACH END SIMILAR)

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 2 OF 4

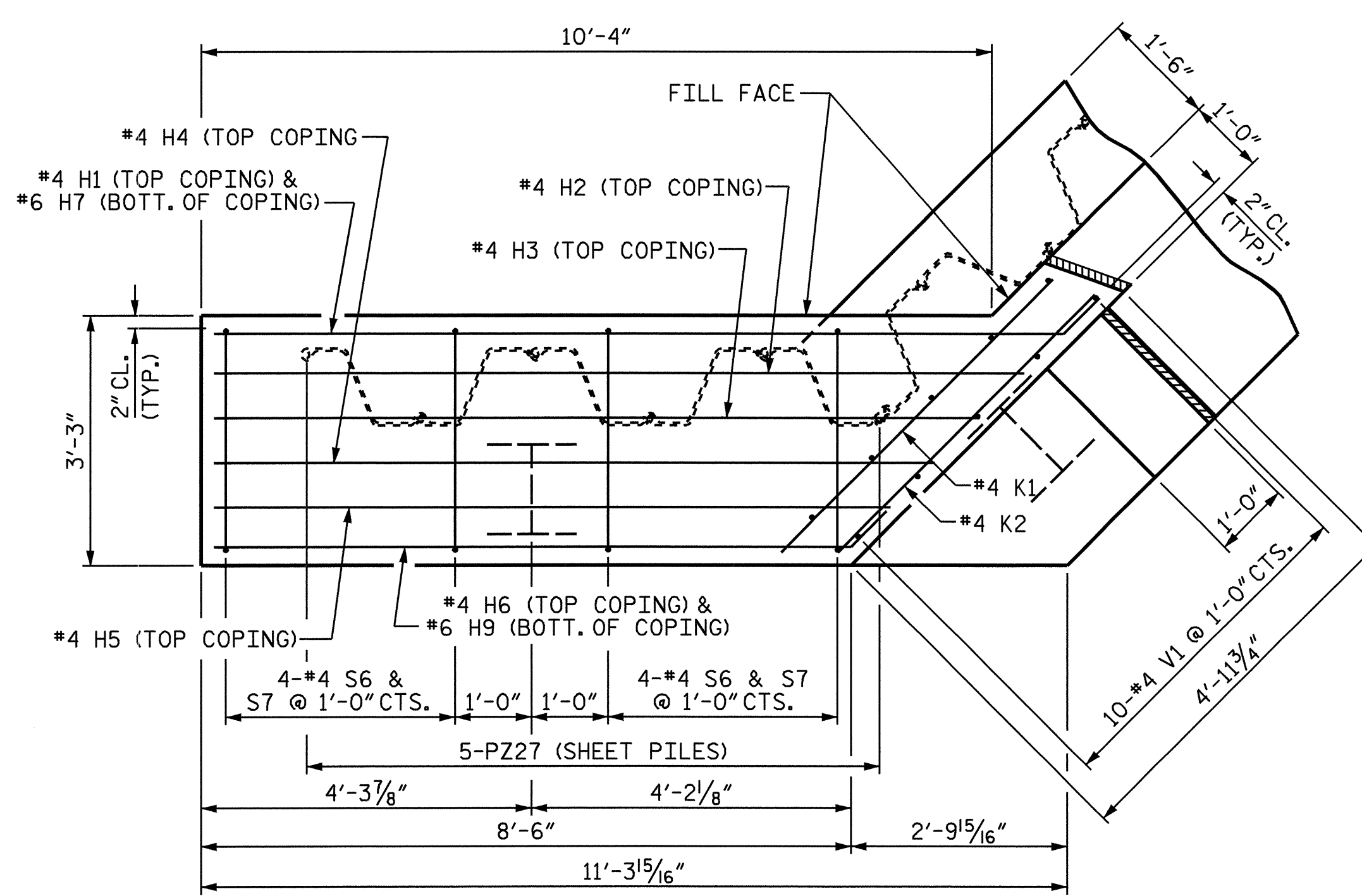
STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

**SUBSTRUCTURE
 END BENT #2**

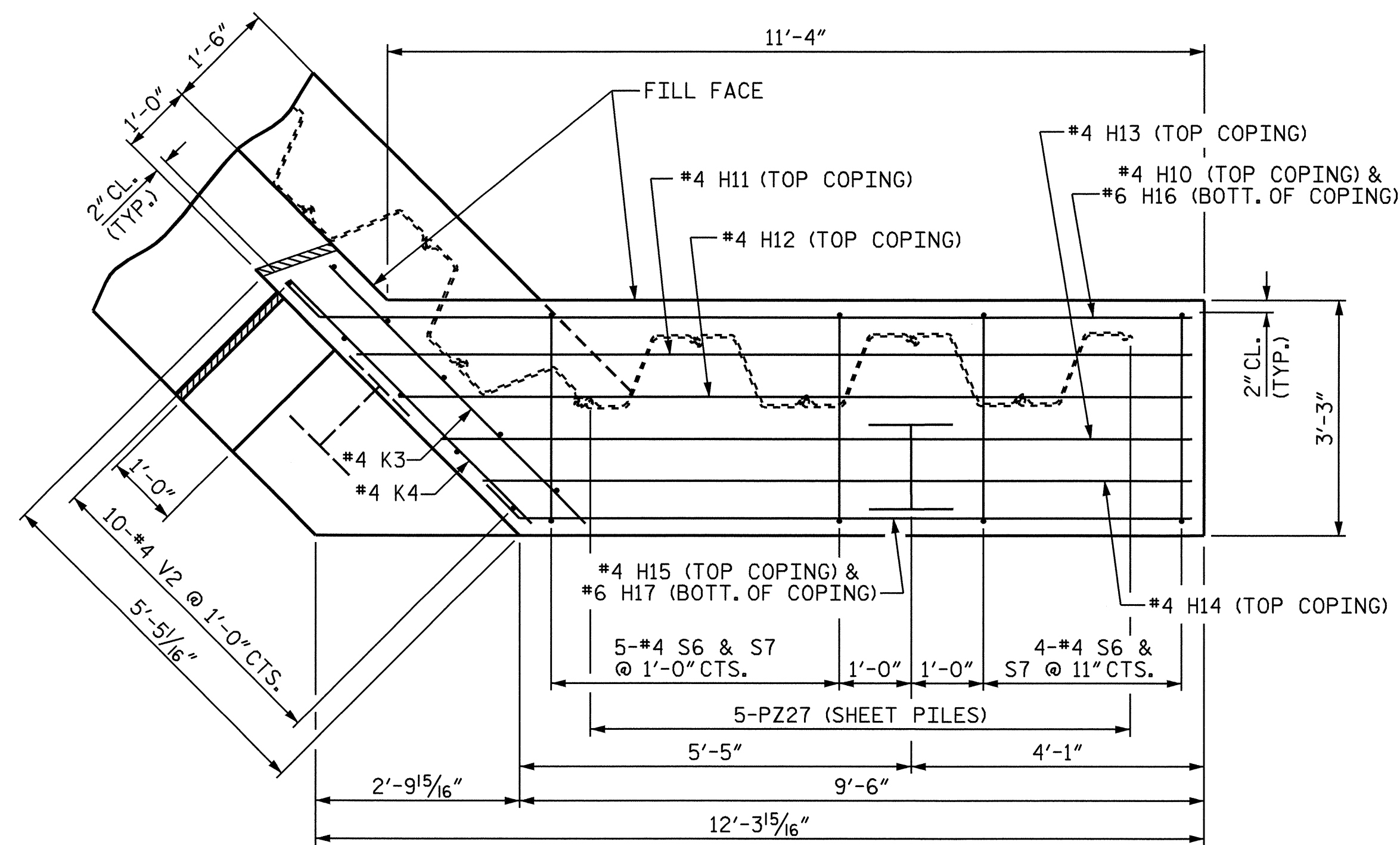


REVISIONS						SHEET NO. S-14
NO.	BY:	DATE:	NO.	BY:	DATE:	
1			3			TOTAL SHEETS 20
2			4			

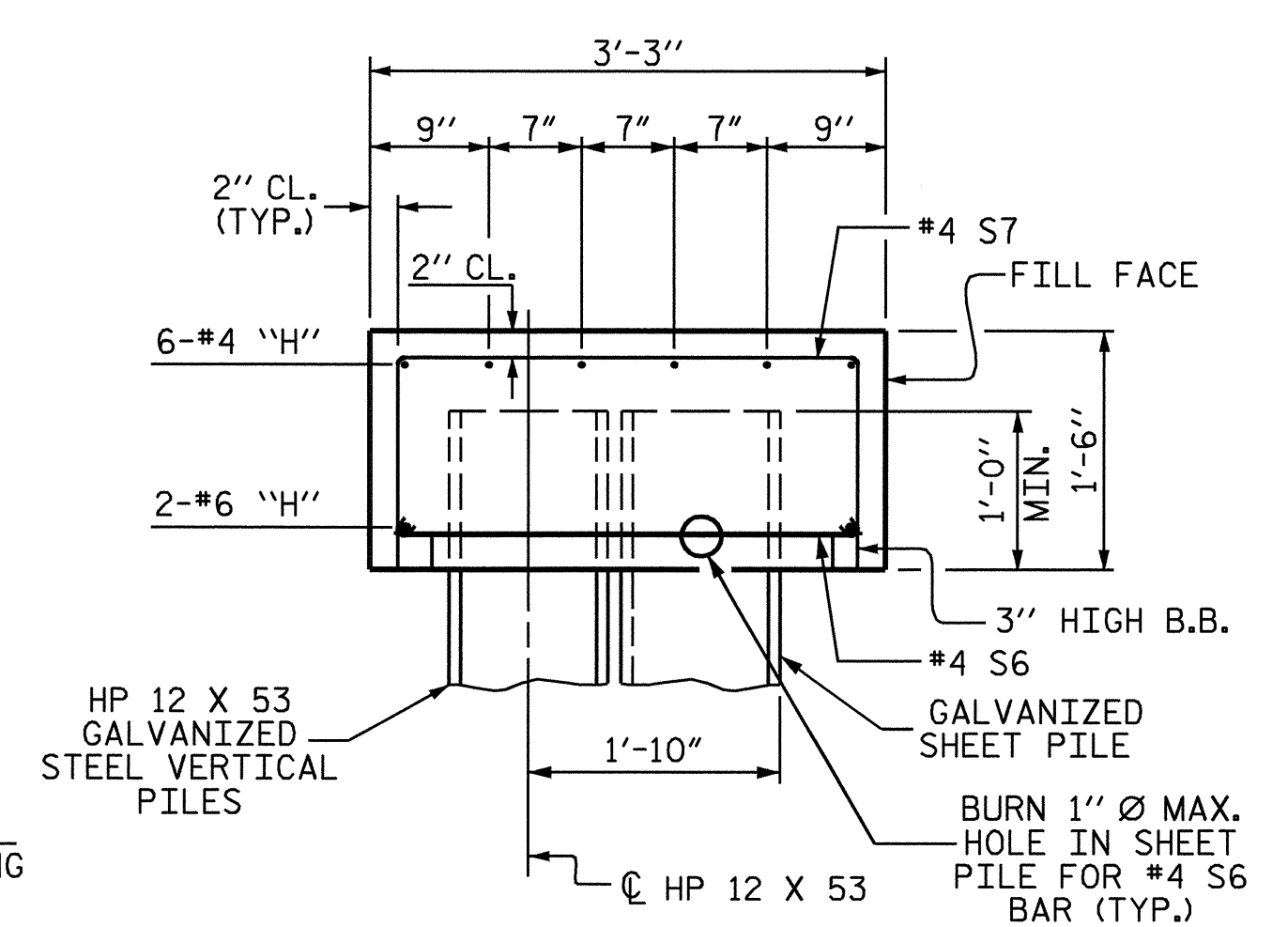
DRAWN BY : A. SORSENGINH DATE : 9/1/09
 CHECKED BY : H. KIM DATE : 9/09



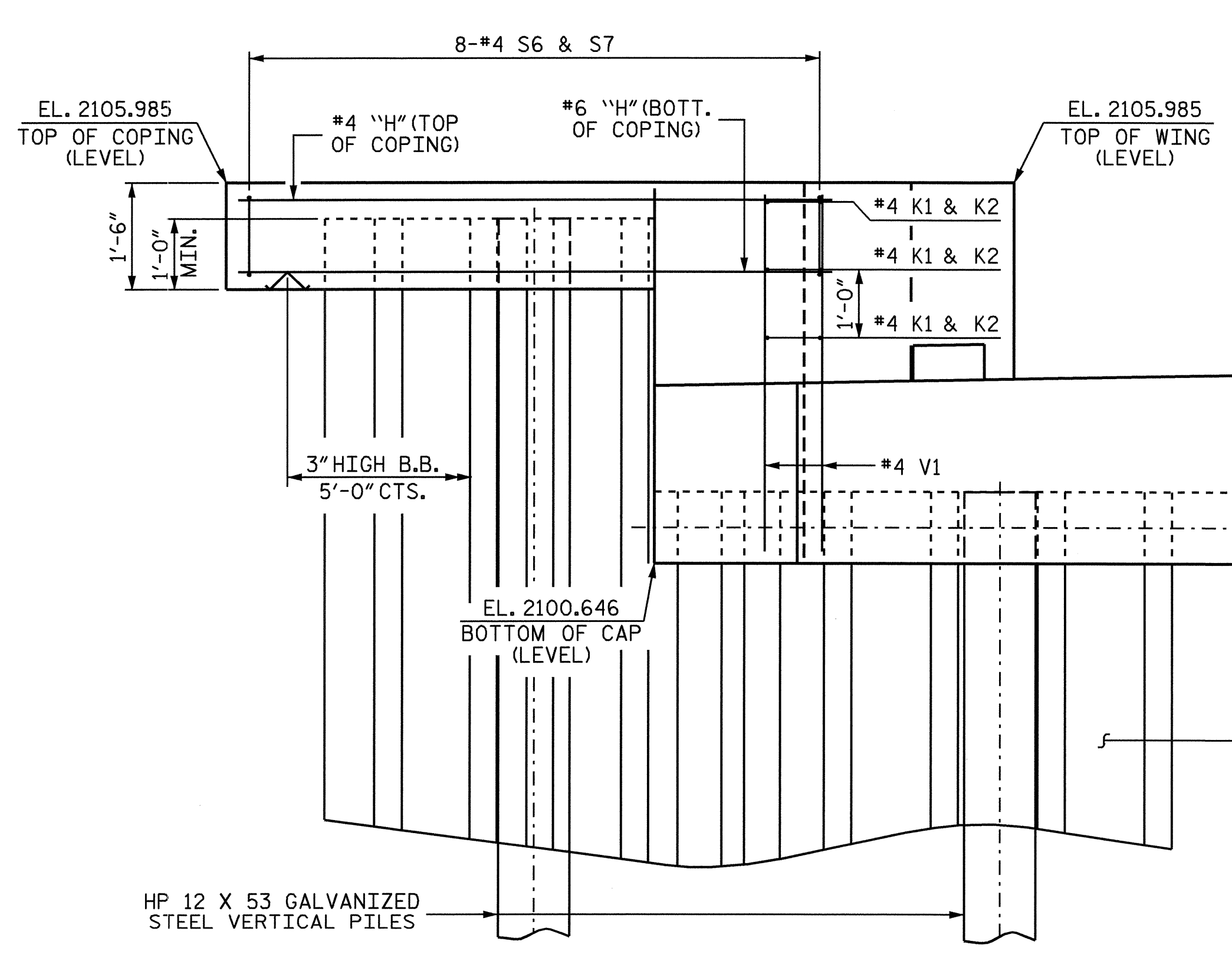
PLAN OF LEFT WING (W1)



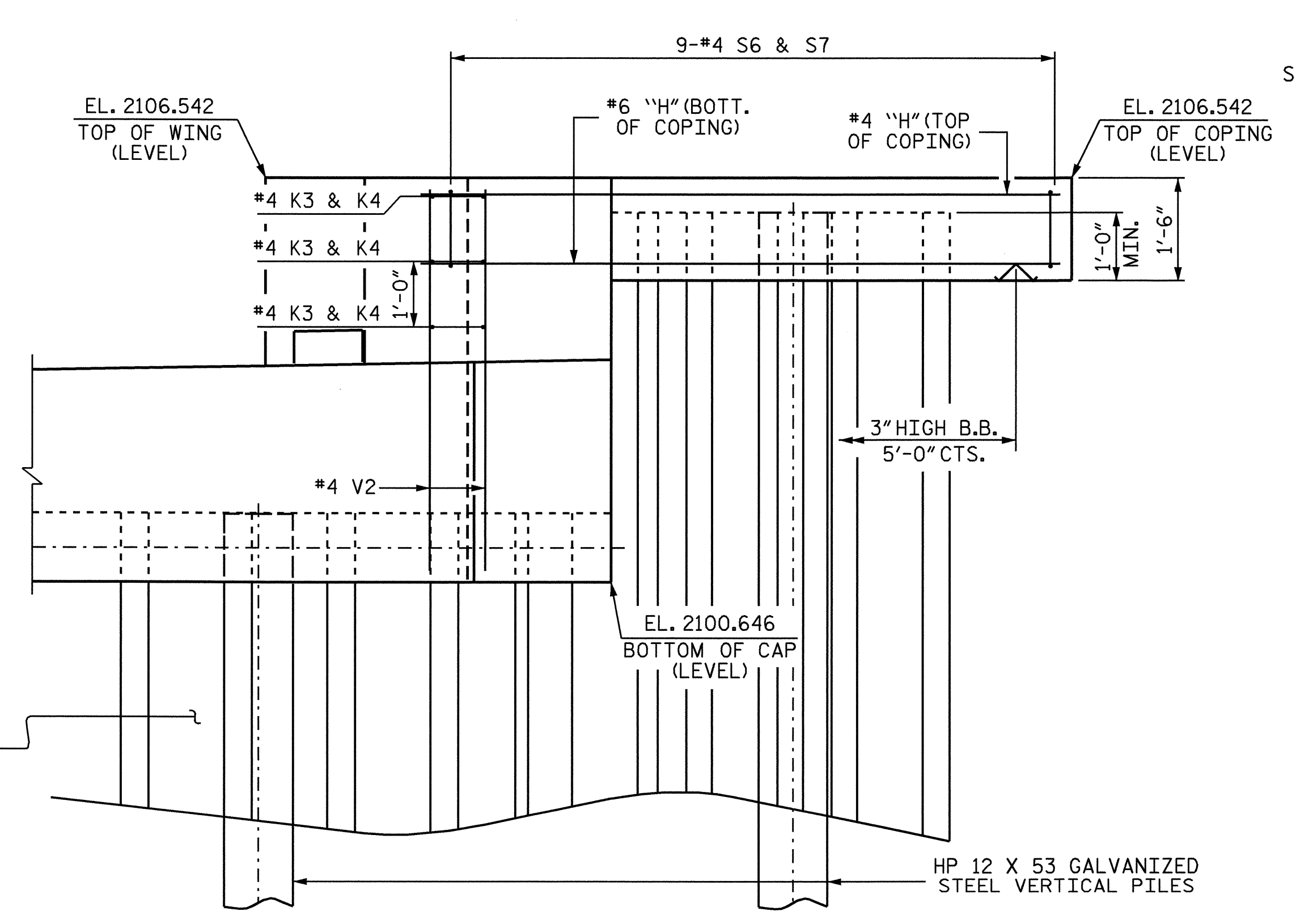
PLAN OF RIGHT WING (W2)



SECTION THRU COPPING



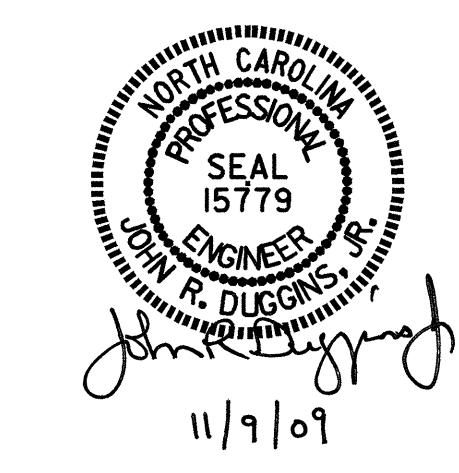
ELEVATION OF LEFT WING (W1)



ELEVATION OF RIGHT WING (W2)

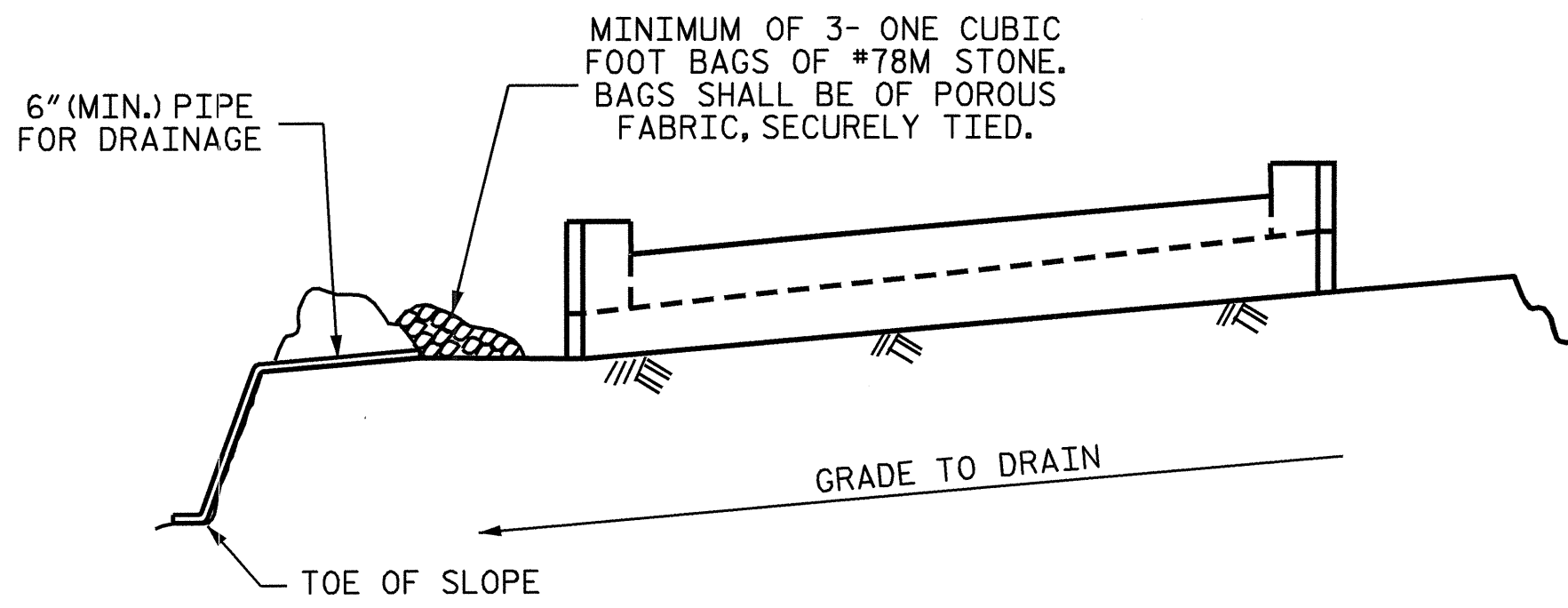
DRAWN BY : A. SORSENGIH DATE : 9/1/09
CHECKED BY : H. KIM DATE : 9/09

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asorsengih



PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-
SHEET 3 OF 4

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION RALEIGH					SHEET NO. S-15				
SUBSTRUCTURE END BENT #2					TOTAL SHEETS 20				
REVISIONS									
NO.	BY:	DATE:	NO.	BY:	DATE:	SHEET NO.			
1			3			S-15			
2			4			TOTAL SHEETS 20			



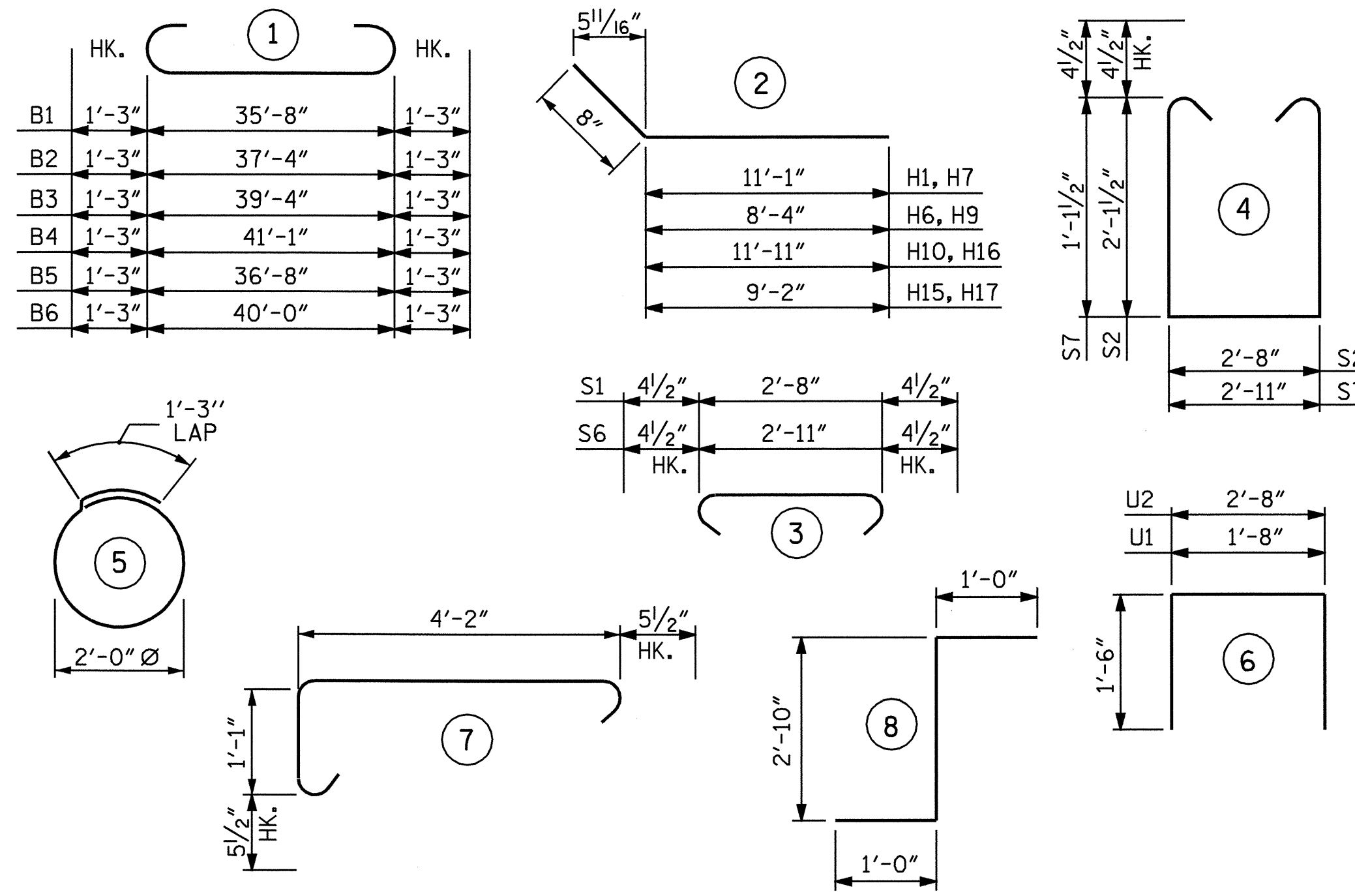
BAGGED STONE AND PIPE SHALL BE PLACED IMMEDIATELY AFTER COMPLETION OF END BENT EXCAVATION. PIPE MAY BE EITHER CONCRETE, CORRUGATED STEEL, CORRUGATED ALUMINUM ALLOY, OR CORRUGATED PLASTIC. PERFORATED PIPE WILL NOT BE ALLOWED.

BAGGED STONE SHALL REMAIN IN PLACE UNTIL THE ENGINEER DIRECTS THAT IT BE REMOVED. THE CONTRACTOR SHALL REMOVE AND DISPOSE OF SILT ACCUMULATIONS AT BAGGED STONE WHEN SO DIRECTED BY THE ENGINEER. BAGS SHALL BE REMOVED AND REPLACED WHENEVER THE ENGINEER DETERMINES THAT THEY HAVE DETERIORATED AND LOST THEIR EFFECTIVENESS.

NO SEPARATE PAYMENT WILL BE MADE FOR THIS WORK AND THE ENTIRE COST OF THIS WORK SHALL BE INCLUDED IN THE UNIT CONTRACT PRICE BID FOR THE SEVERAL PAY ITEMS.

TEMPORARY DRAINAGE AT END BENT

BAR TYPES



ALL BAR DIMENSIONS ARE OUT TO OUT.

BILL OF MATERIAL

END BENT #2

BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR NO.	NO.	SIZE	TYPE	LENGTH	WEIGHT
B1	2	#9	1	38'-2"	260	D1	20	#6	STR	1'-6"	45
B2	1	#9	1	39'-10"	135						
B3	1	#9	1	41'-10"	142	H1	1	#4	2	11'-9"	8
B4	2	#9	1	43'-7"	296	H2	1	#4	STR	10'-7"	7
B5	1	#9	1	39'-2"	133	H3	1	#4	STR	10'-0"	7
B6	1	#9	1	42'-6"	145	H4	1	#4	STR	9'-5"	6
B7	4	#4	STR	19'-2"	51	H5	1	#4	STR	8'-10"	6
B8	4	#4	STR	21'-10"	58	H6	1	#4	2	9'-0"	6
B9	8	#4	STR	22'-0"	118	H7	1	#6	2	11'-9"	18
B10	2	#5	STR	35'-0"	73	H9	1	#6	2	9'-0"	14
B11	1	#5	STR	32'-4"	34	H10	1	#4	2	12'-7"	8
B12	4	#4	STR	21'-6"	57	H11	1	#4	STR	11'-5"	8
B13	9	#4	STR	2'-8"	16	H12	1	#4	STR	10'-10"	7

18" GALVANIZED STEEL SHEET PILES
NO. PZ27 = 35
NO. PZ45 = 2
TOTAL NO. = 37 SQ. FT. = 955

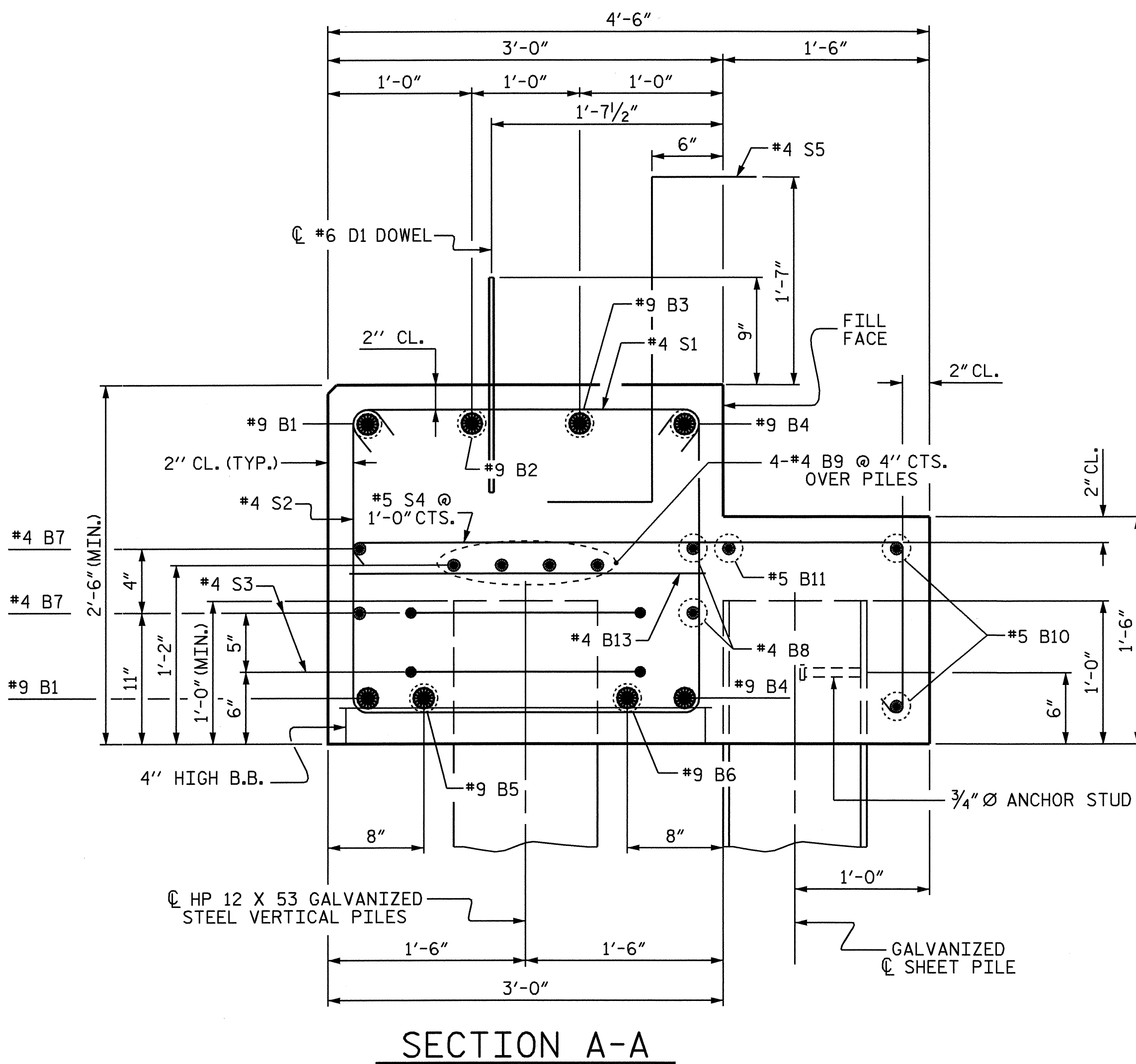
HP 12 X 53 GALVANIZED STEEL PILES
NO. = 9 LIN. FT. = 225

PILE EXCAVATION QUANTITIES
PILE EXCAVATION IN SOIL 145 LIN. FT.
PILE EXCAVATION NOT IN SOIL 45 LIN. FT.

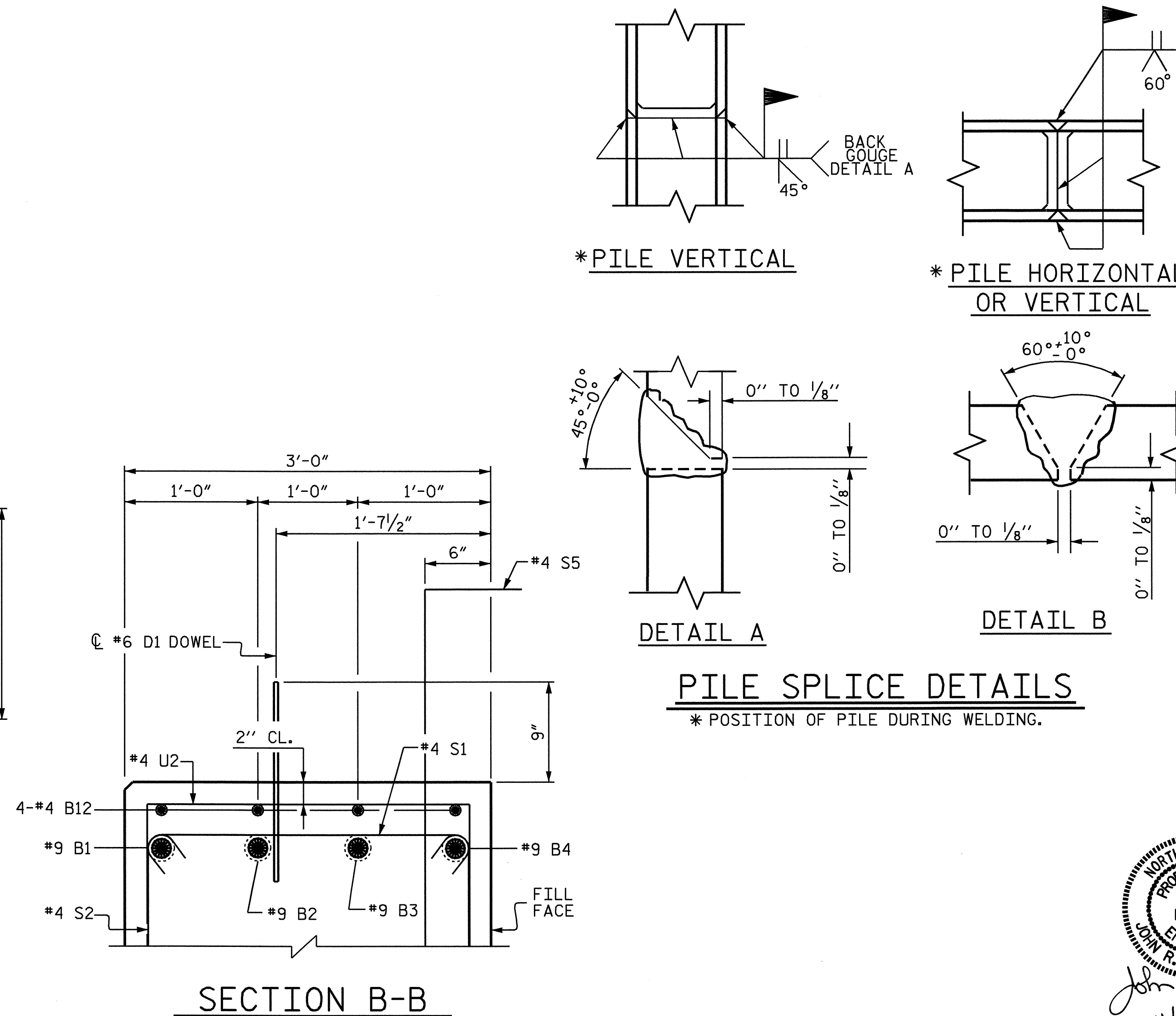
H13	1	#4	STR	10'-3"	7
H14	1	#4	STR	9'-8"	6
H15	1	#4	2	9'-10"	7
H16	1	#6	2	9'-7"	14
H17	1	#6	2	9'-10"	15
K1	3	#4	STR	5'-0"	10
K2	3	#4	STR	4'-8"	9
K3	3	#4	STR	5'-3"	11
K4	3	#4	STR	5'-1"	10
S1	32	#4	3	3'-5"	73
S2	32	#4	4	7'-8"	164
S3	16	#4	5	7'-7"	81
S4	32	#5	7	6'-2"	206
S5	30	#4	8	4'-10"	97
S6	17	#4	3	3'-8"	42
S7	17	#4	4	5'-11"	67
U1	4	#4	6	4'-8"	12
U2	13	#4	6	5'-8"	49
V1	10	#4	STR	5'-0"	33
V2	10	#4	STR	5'-6"	37

REINFORCING STEEL 2,608 LBS.

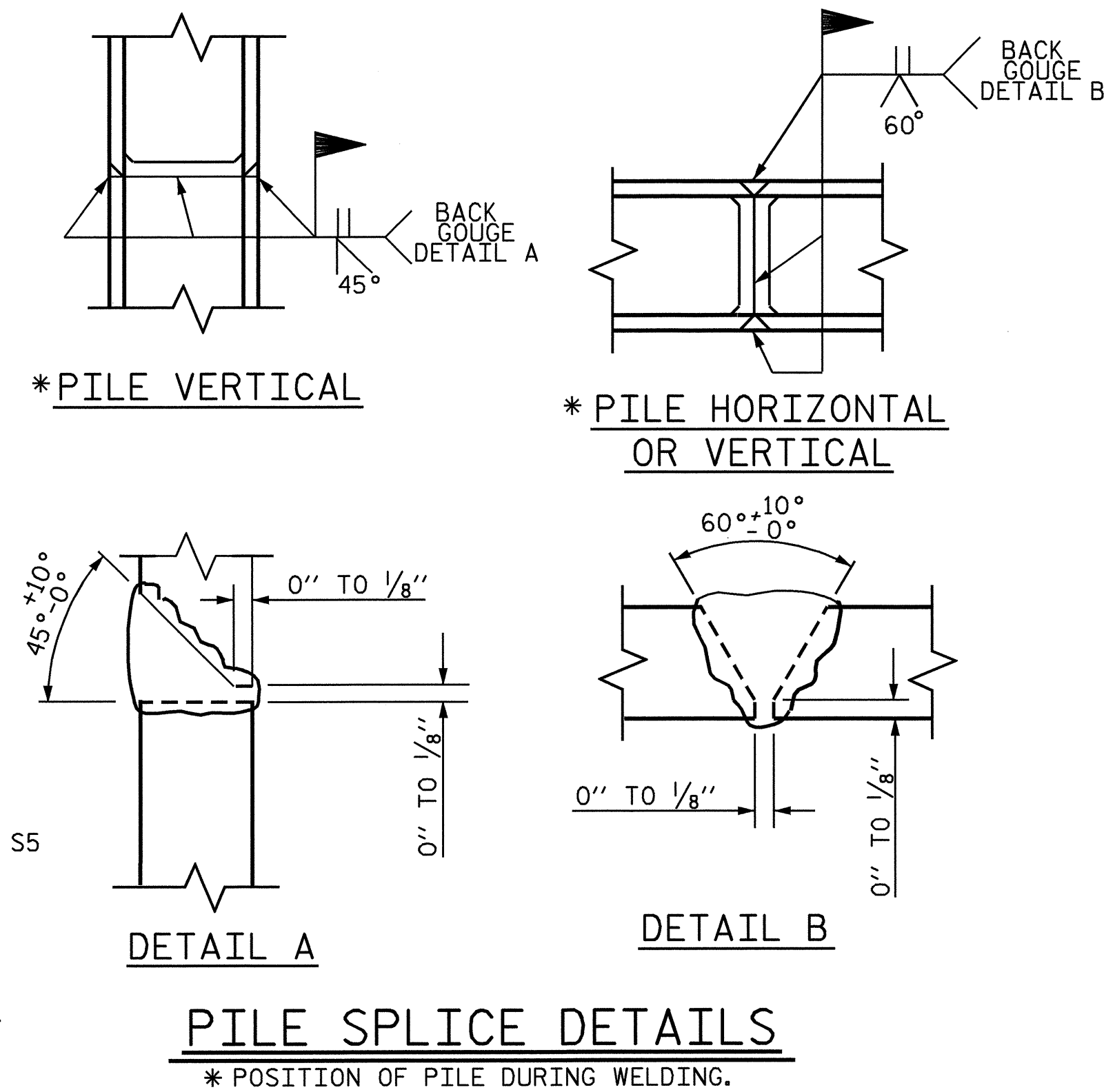
CLASS A CONCRETE BREAKDOWN
POUR #1 CAP 15.7 C.Y.
POUR #2 WING AND COPING 4.3 C.Y.
POUR #3 LATERAL GUIDE 0.1 C.Y.
TOTAL CLASS A CONCRETE 20.1 C.Y.



SECTION A-A



SECTION B-B



PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-

SHEET 4 OF 4

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-16	
1			3			TOTAL SHEETS 20	
2			4				

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

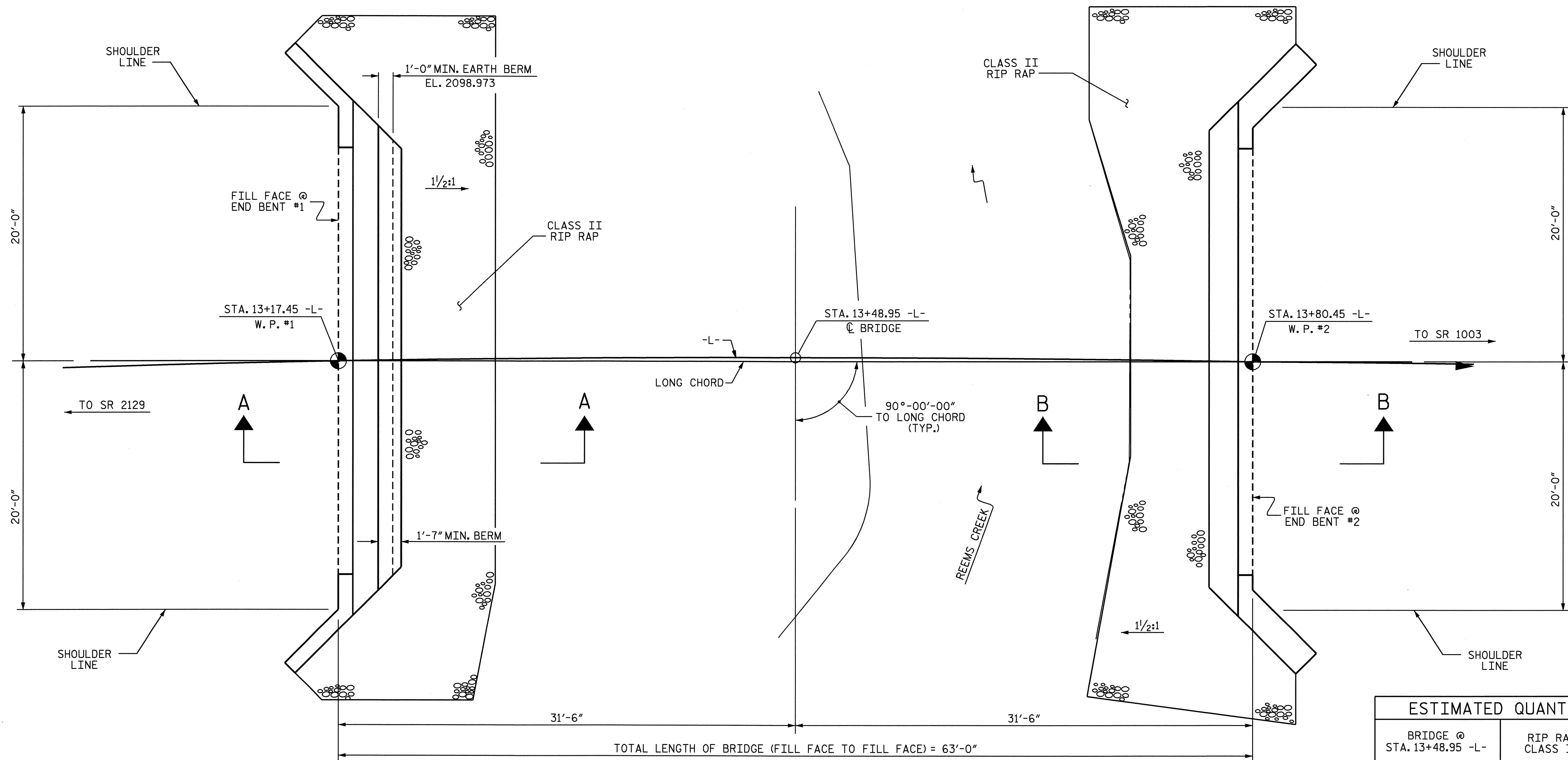
PROFESSIONAL SEAL
15779
ENGINEER
JOHN R. DUGGINS JR.

John R. Duggins Jr.
11/9/09

DRAWN BY: A. SORSENGINH DATE: 9/2/09
CHECKED BY: H. KIM DATE: 9/09

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asorsenginh

NC005

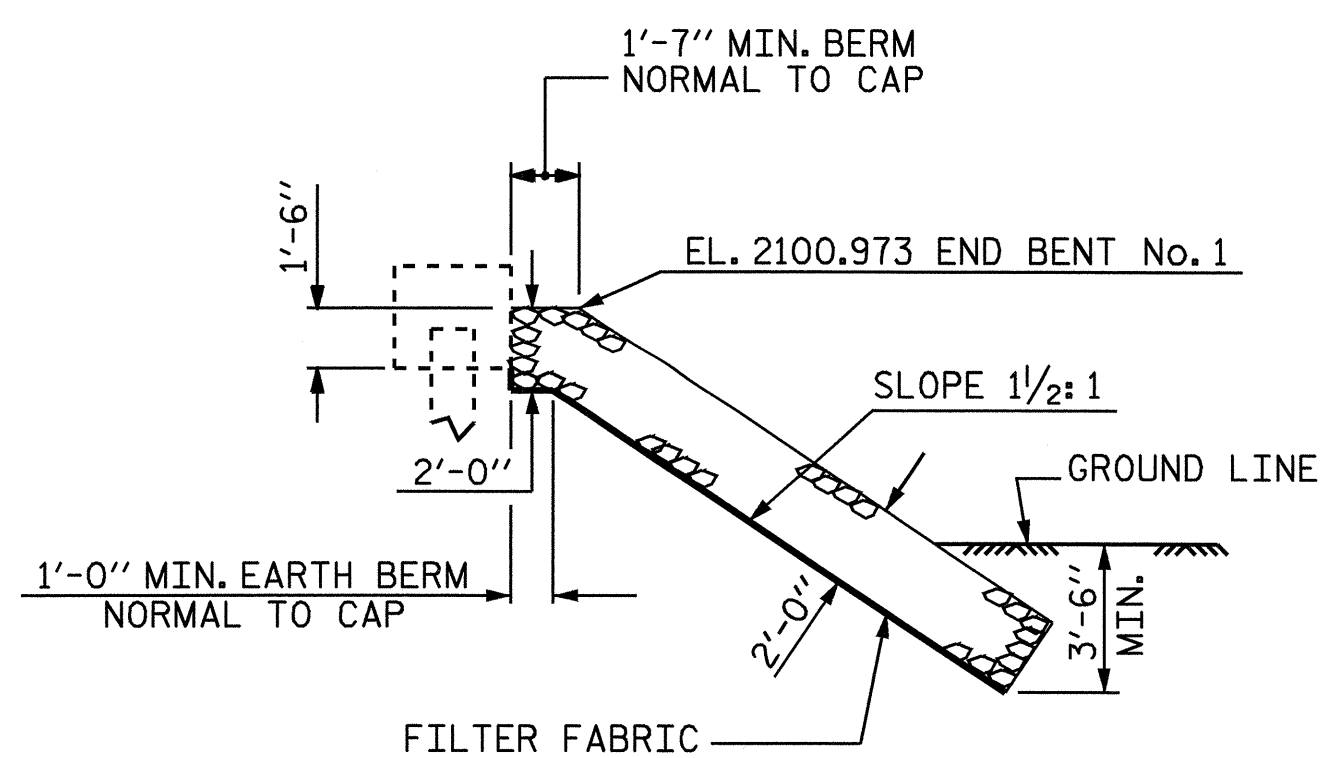


PLAN OF RIP RAP AT END BENT #1

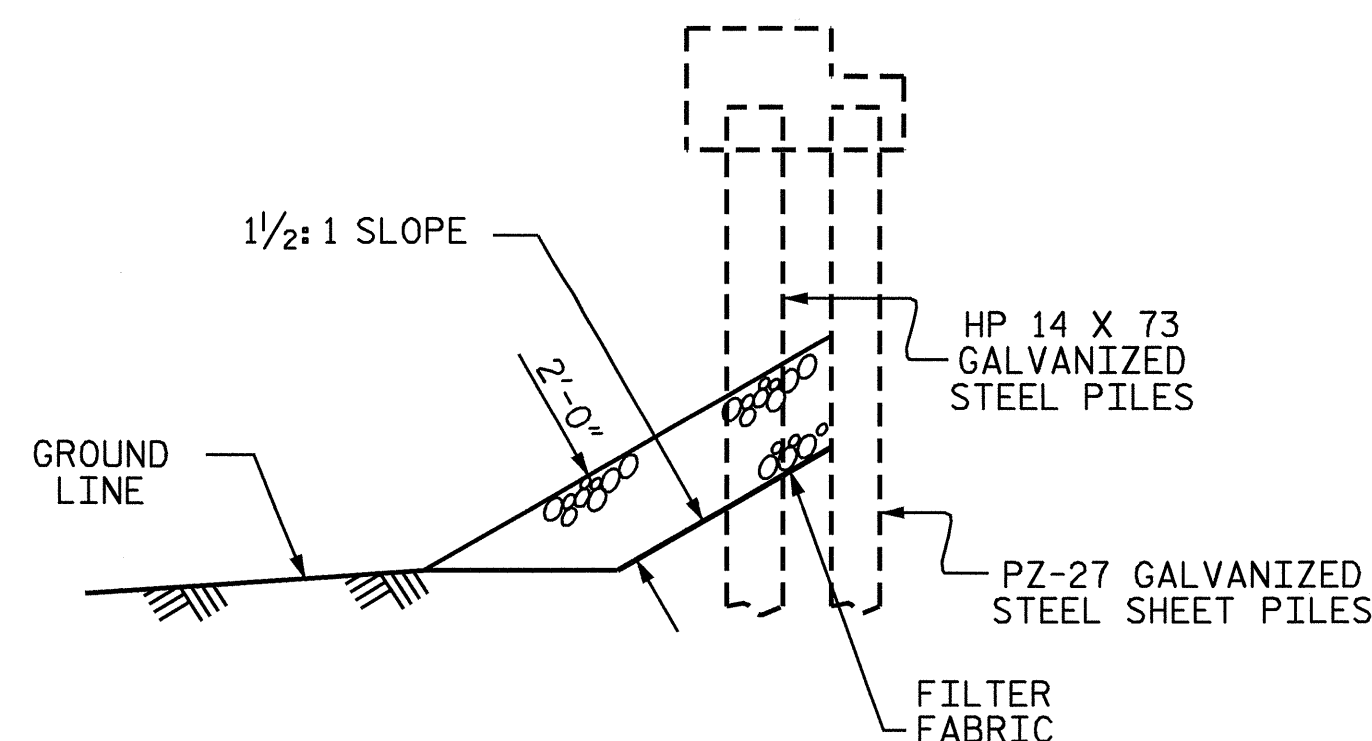
PLAN

PLAN OF RIP RAP AT END BENT #2

ESTIMATED QUANTITIES		
BRIDGE @ STA. 13+48.95 -L-	RIp RAP CLASS II	FILTER FABRIC FOR DRAINAGE
	TONS	SQUARE YARDS
END BENT No. 1	81	90
END BENT No. 2	60	67



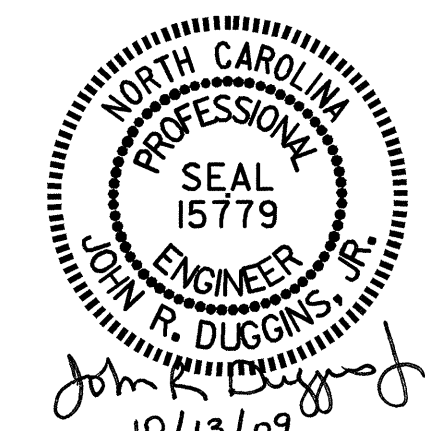
SECTION A-A



SECTION B-B

PROJECT NO. B-4446
BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH
 RIP RAP DETAILS



DRAWN BY: J. LAMBERT DATE: 8/09
 CHECKED BY: J.R. DUGGINS DATE: 9/09

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-11	
1			3			TOTAL SHEETS	20
2			4				

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 jllambert

NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED AT THE DIRECTION OF THE ENGINEER. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

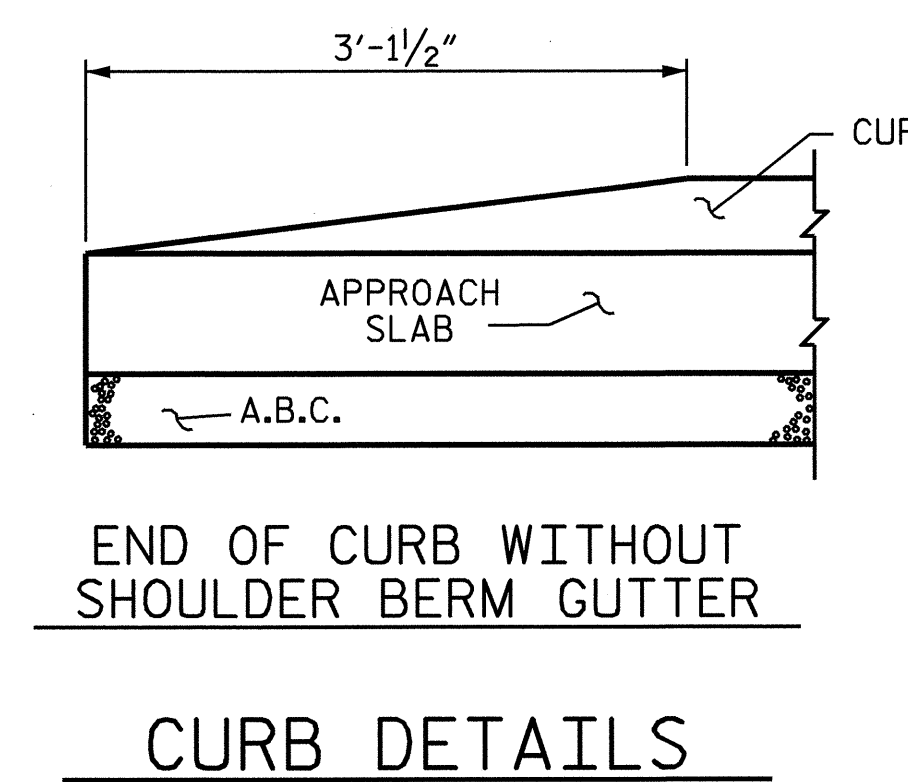
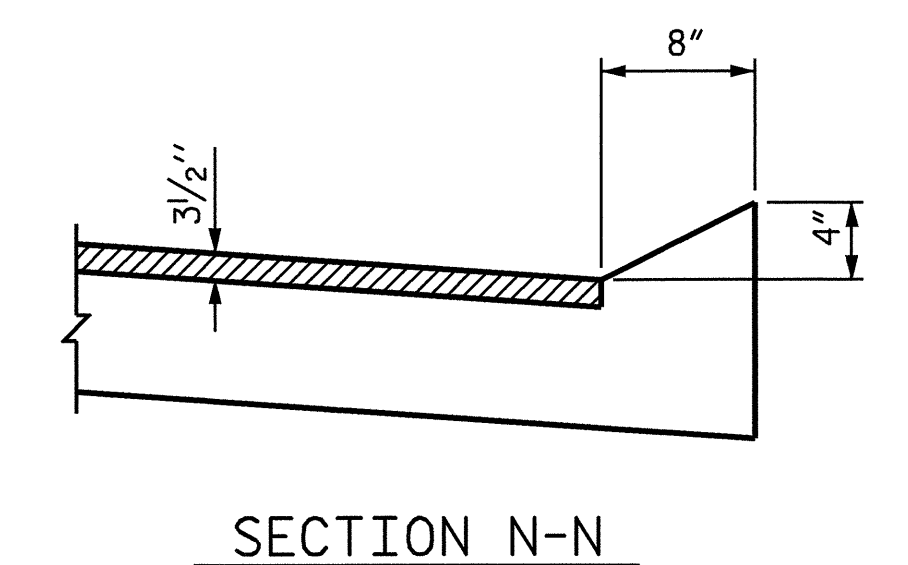
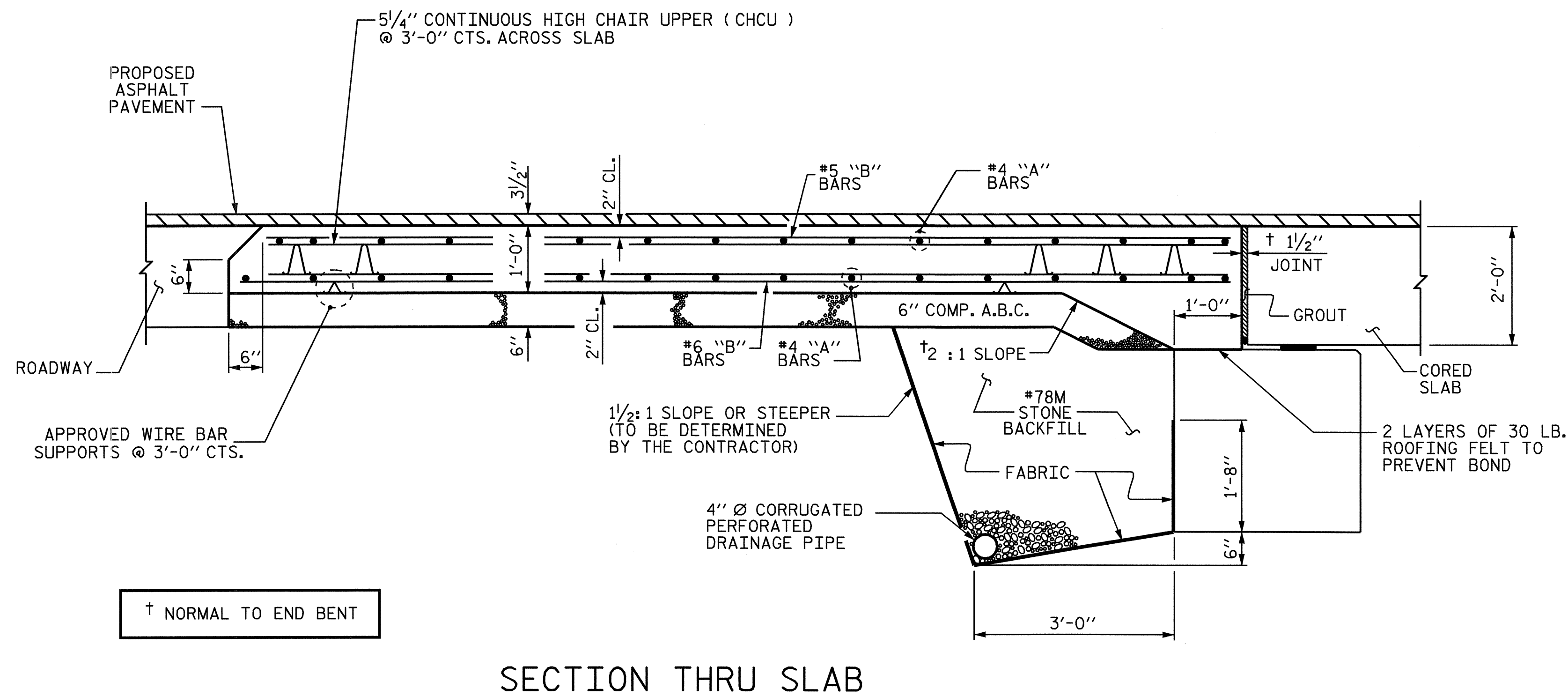
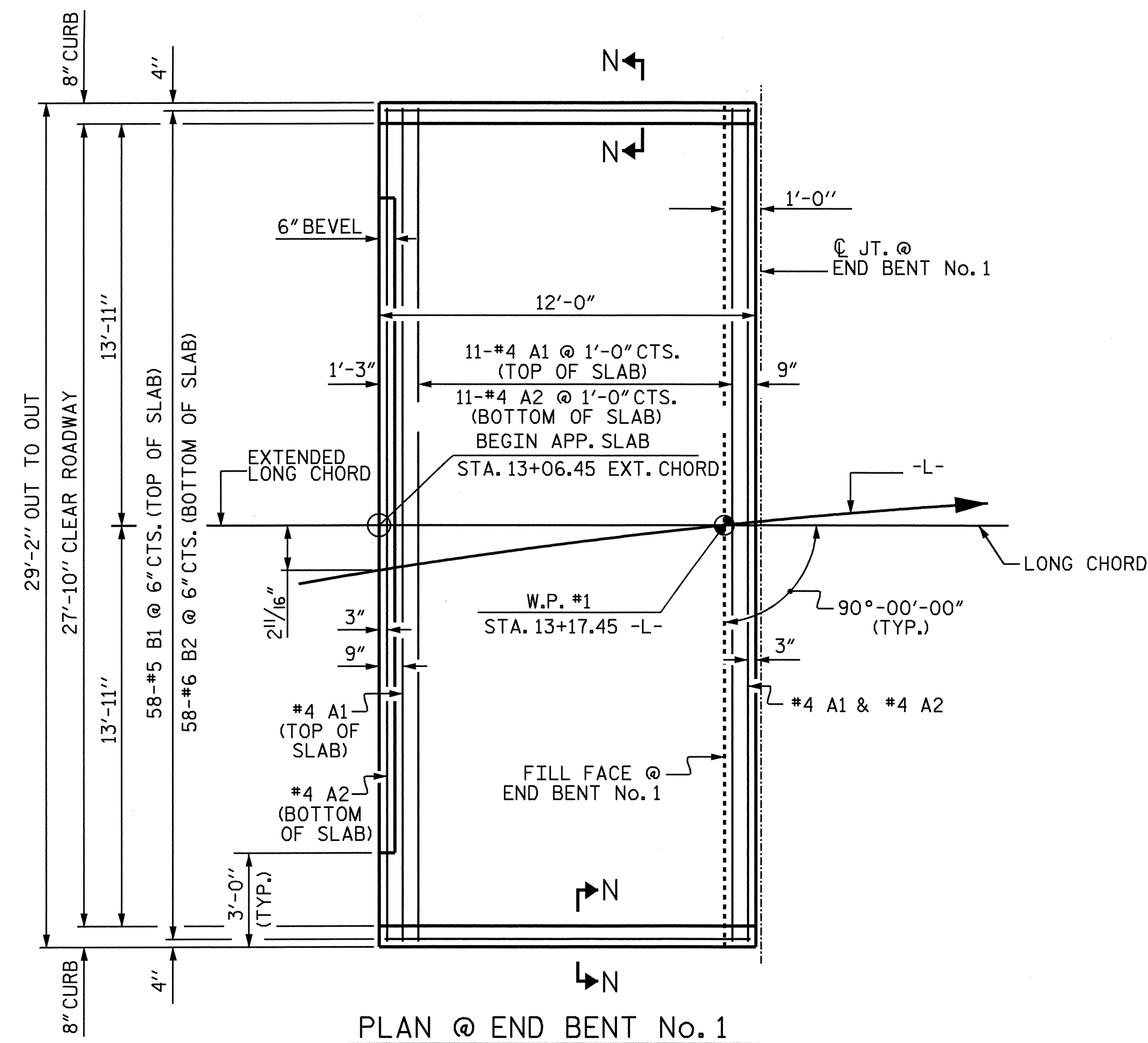
THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

APPROACH SLAB GROOVING IS NOT REQUIRED.



ASSEMBLED BY : M. POOLE	DATE : 08/09
CHECKED BY : D. HODGE	DATE : 09/09
DRAWN BY : KMM 3-08	
CHECKED BY : GM 3-08	

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PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-

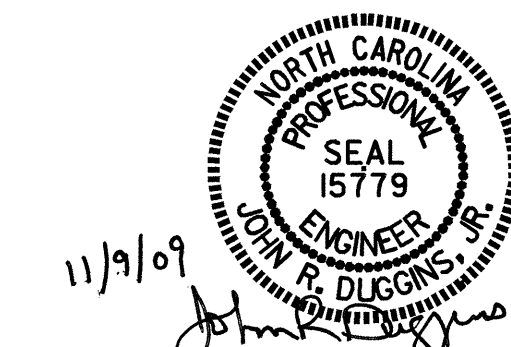
SHEET 1 OF 3

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	TOTAL SHEETS
1			3			18
2			4			20

(SHT 1a) STD. NO. BAS13



NOTES

FOR BRIDGE APPROACH FILL INCLUDING FABRIC, 4" Ø DRAINAGE PIPE, AND #78M STONE BACKFILL, SEE ROADWAY PLANS.

APPROACH SLAB SHALL NOT BE CONSTRUCTED PRIOR TO COMPLETION OF THE BRIDGE DECK.

FABRIC SHALL BE TYPE 1 ENGINEERING FABRIC IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS SECTION 1056.

#78M STONE BACKFILL (CLASS V SELECT MATERIAL) SHALL BE IN ACCORDANCE WITH STANDARD SPECIFICATIONS SECTION 1016.

#78M STONE BACKFILL IS TO BE CONTINUOUS ALONG FILL FACE OF BACKWALL FROM OUTSIDE EDGE TO OUTSIDE EDGE OF APPROACH SLAB.

FOR THE 4" Ø DRAINAGE PIPE OUTLET(S), SEE ROADWAY STANDARD DRAWINGS.

AREA BETWEEN THE WINGWALL AND APPROACH SLAB SHALL BE GRADED TO DRAIN THE WATER AWAY FROM THE FILL FACE OF THE BRIDGE AND SHALL BE PAVED. SEE ROADWAY PLANS.

THE 6" COMP. A.B.C. SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB AND SHALL EXTEND 1'-0" OUTSIDE OF EACH EDGE OF THE APPROACH SLAB.

THE CONTRACTOR MAY USE 4" TYPE B-25.0B ASPHALT CONCRETE BASE COURSE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE BASE COURSE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB.

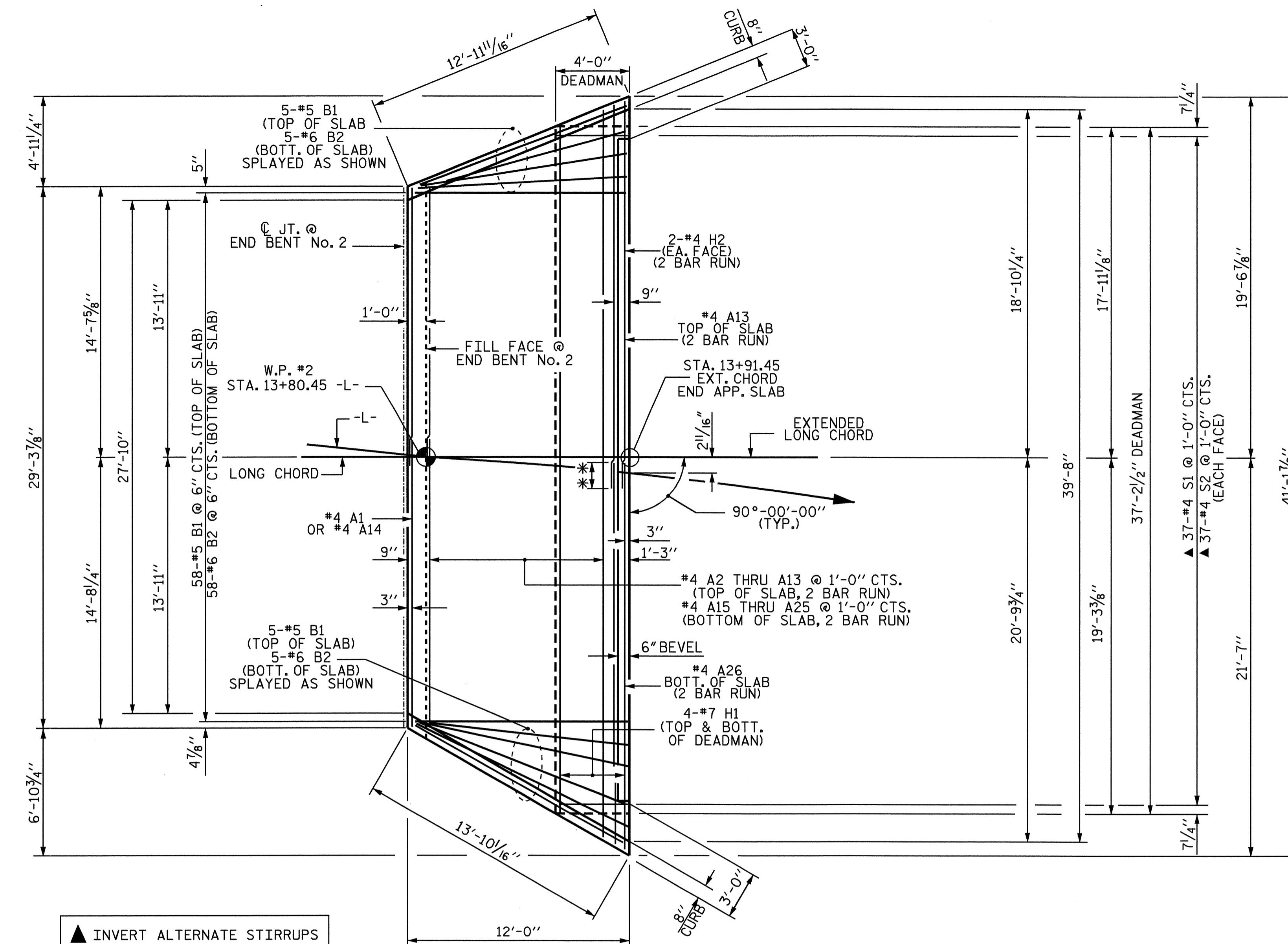
THE CONTRACTOR MAY USE 5" CLASS "A" CONCRETE BASE IN LIEU OF 6" COMP. A.B.C. IF THIS OPTION IS USED, THE CONCRETE BASE SHALL BE FLUSH WITH THE ROADWAY END OF THE APPROACH SLAB, AND THE WIDTH SHALL BE THE SAME AS THAT OF THE APPROACH SLAB. THE CONCRETE SHALL BE FINISHED TO A SMOOTH SURFACE AND A LAYER OF 30 LB ROOFING FELT SHALL BE PLACED BETWEEN THE CONCRETE BASE AND THE APPROACH SLAB TO PREVENT BOND. THE APPROACH SLAB SHALL NOT BE CAST UNTIL THE CONCRETE BASE HAS REACHED AN AGE OF THREE CURING DAYS.

FOR JOINT DETAILS, SEE "PRESTRESSED CONCRETE CORED SLAB UNIT" SHEETS.

THE JOINT AT THE END BENT SHALL BE GROUTED AS SOON AS PRACTICAL AFTER THE CONSTRUCTION OF THE APPROACH SLABS.

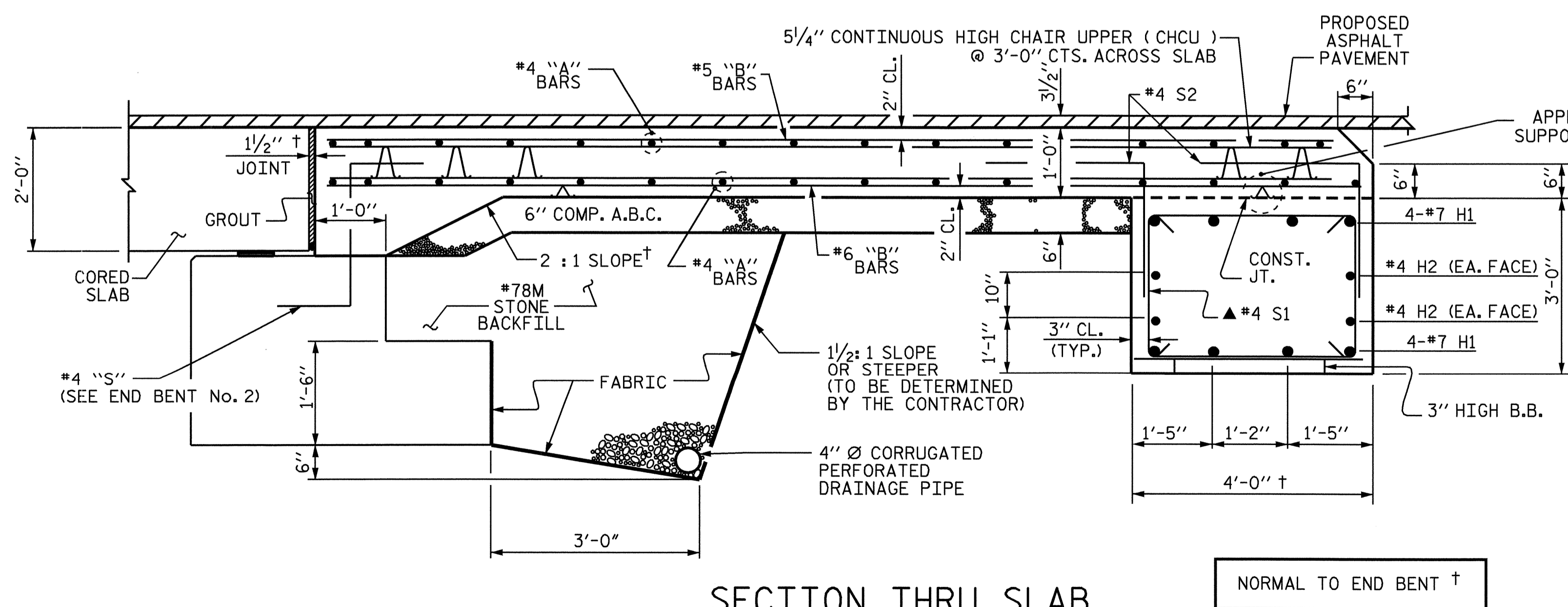
APPROACH SLAB GROOVING IS NOT REQUIRED.

CONCRETE AND REINFORCING STEEL IN DEADMAN TO BE PAID FOR UNDER LUMP SUM PRICE BID FOR BRIDGE APPROACH SLABS.



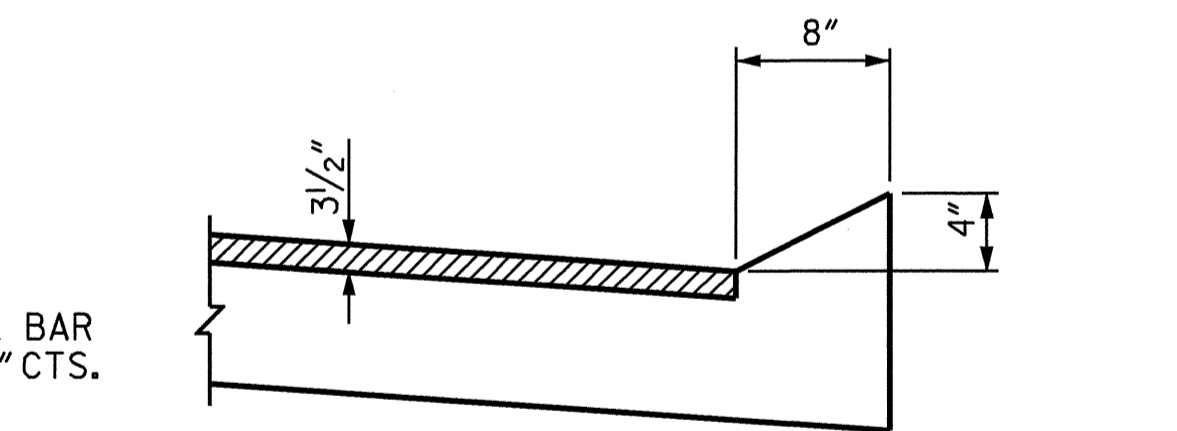
PLAN @ END BENT NO. 2

**2'-0" SPLICE #4 A3 THRU A13
*1'-9" SPLICE #4 A16 THRU A26

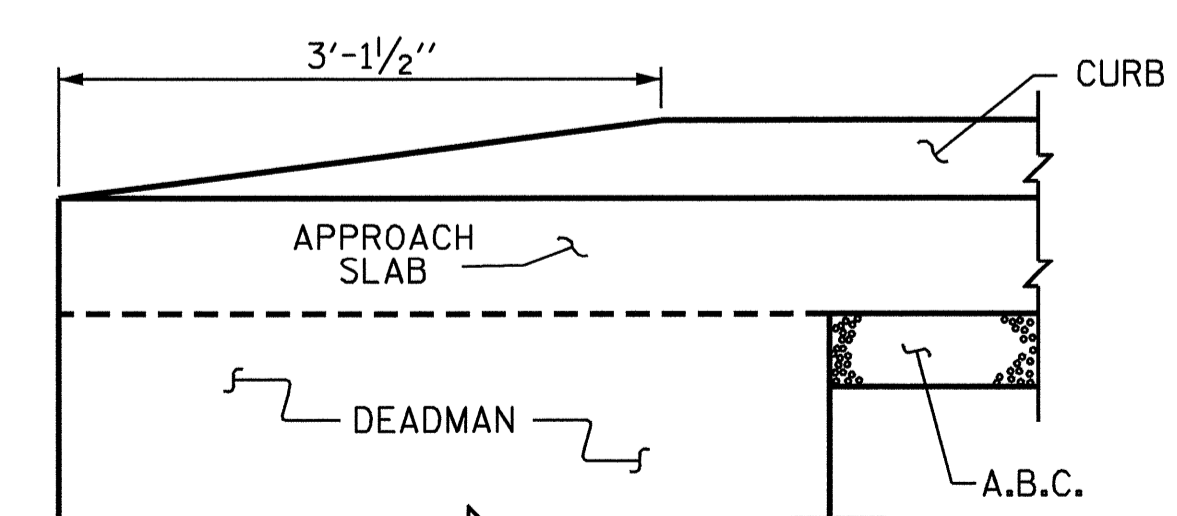


SECTION THRU SLAB

NORMAL TO END BENT †



SECTION N-N



END OF CURB WITHOUT SHOULDER BERM GUTTER

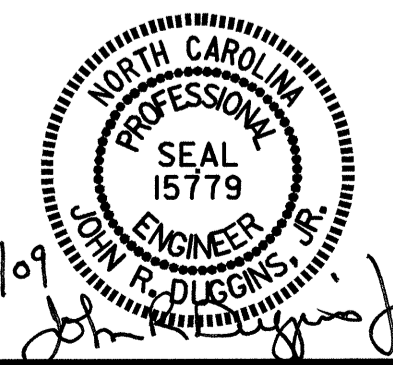
CURB DETAILS

PROJECT NO. B-4446
BUNCOMBE COUNTY
STATION: 13+48.95 -L-

SHEET 2 OF 3

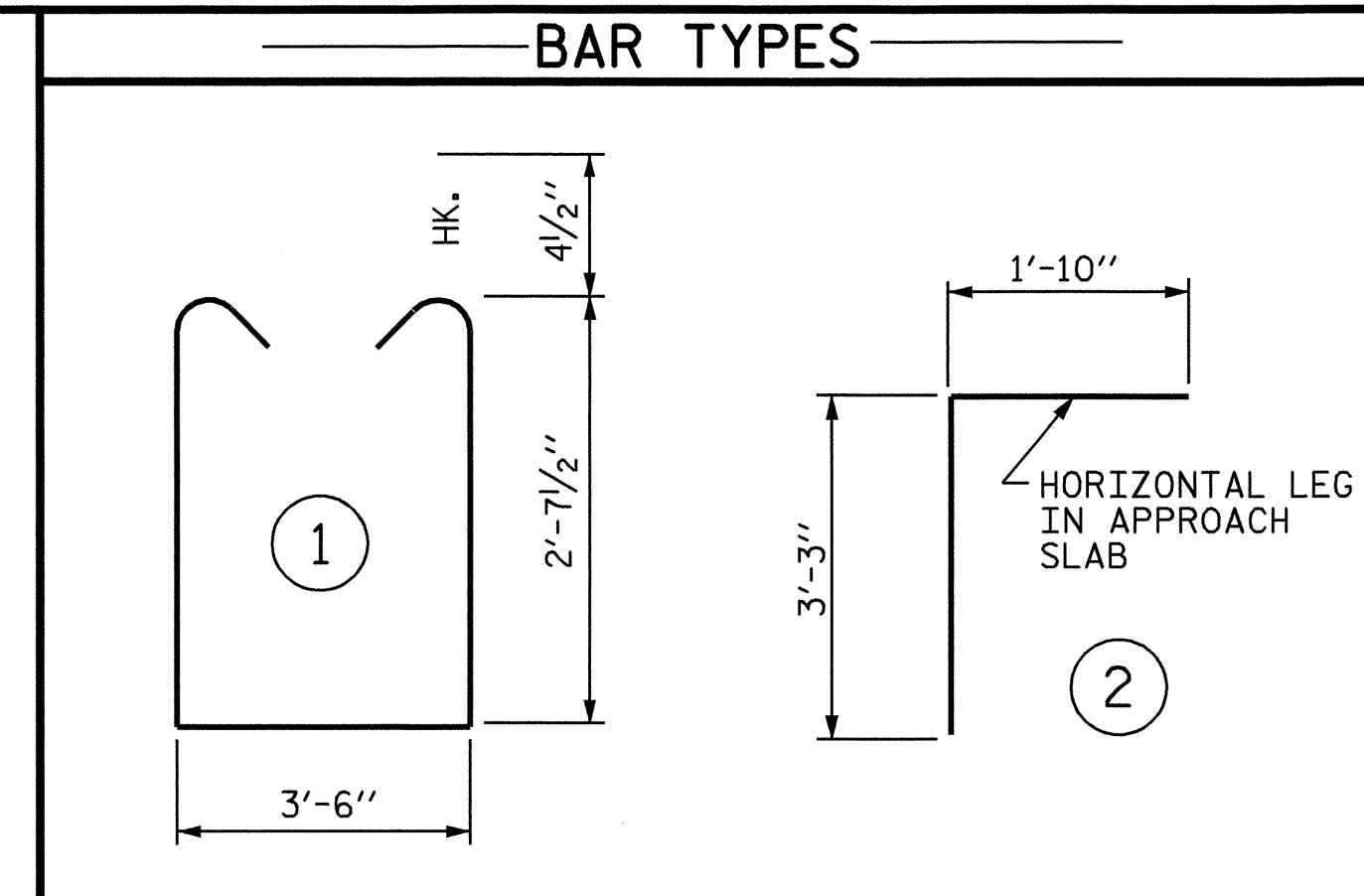
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH
BRIDGE APPROACH SLAB
FOR PRESTRESSED CONCRETE
CORED SLAB UNIT
(SUB-REGIONAL TIER)

REVISIONS						SHEET NO.	
NO.	BY:	DATE:	NO.	BY:	DATE:	S-19	
1			3			TOTAL SHEETS	
2			4			20	



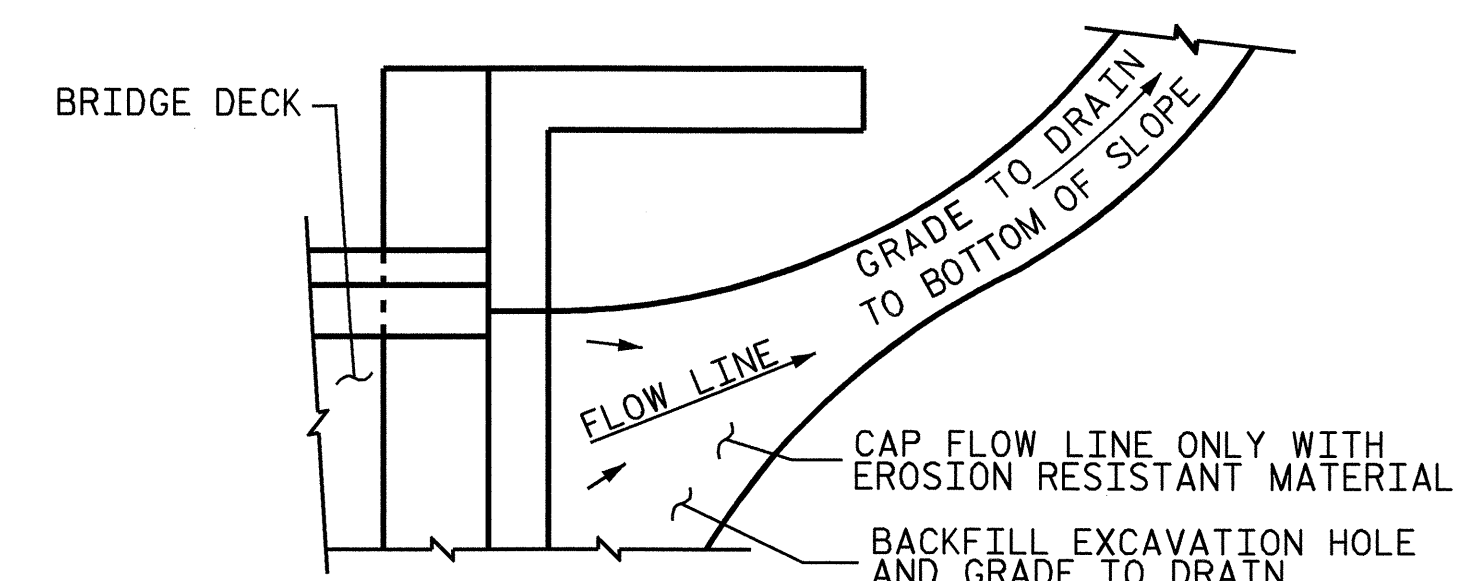
ASSEMBLED BY: M. POOLE DATE: 08/09
CHECKED BY: D. HODGE DATE: 09/09
DRAWN BY: KMM 3-08
CHECKED BY: GM 3-08

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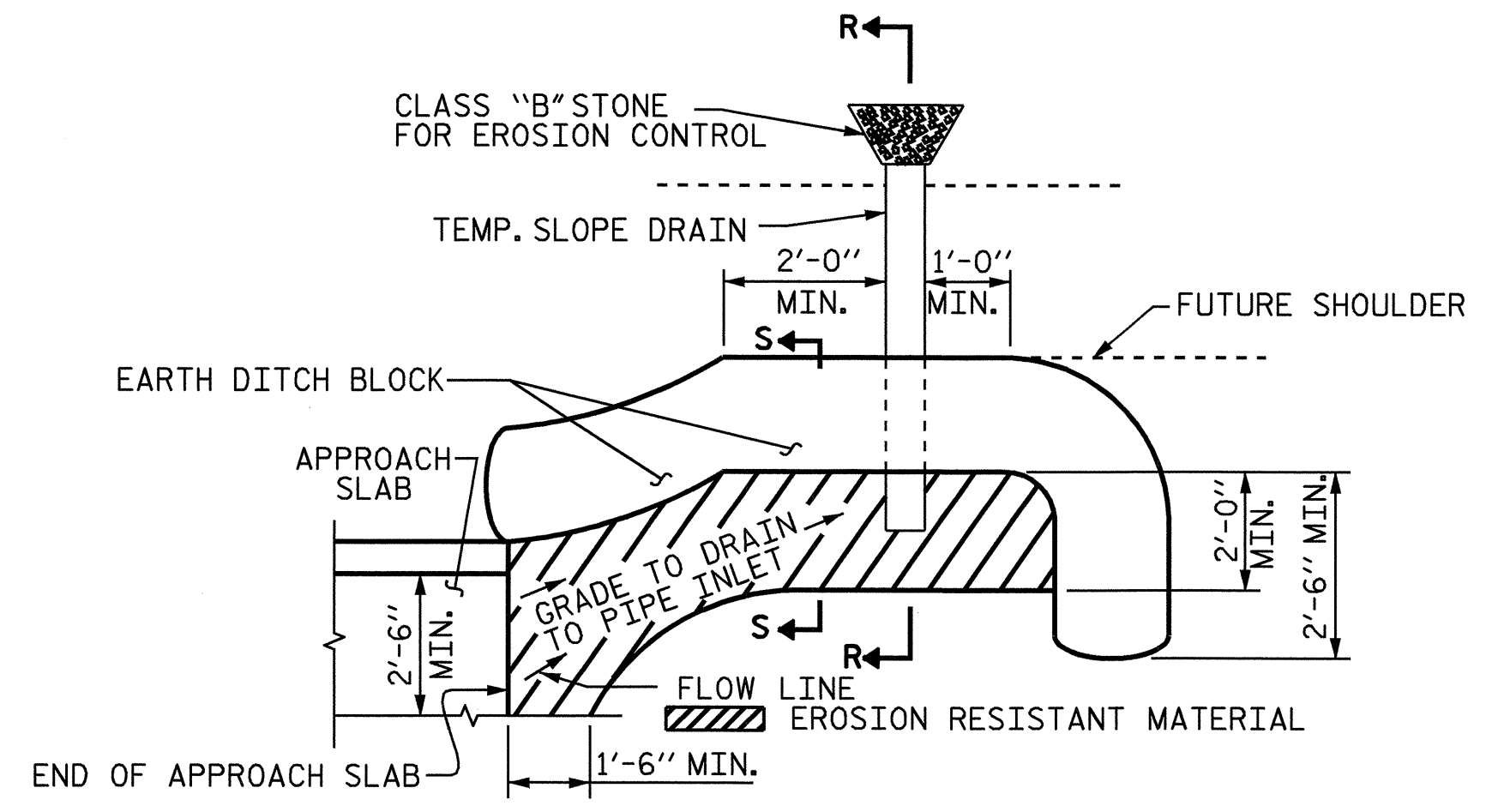
ALL BAR DIMENSIONS ARE OUT TO OUT

BILL OF MATERIAL													
APPROACH SLAB AT END BENT No. 1						APPROACH SLAB AT END BENT No. 2							
BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT	BAR	NO.	SIZE	TYPE	LENGTH	WEIGHT		
*A1	13	#4	STR	28'-8"	249	*A1	1	#4	STR	29'-2"	19		
A2	13	#4	STR	28'-8"	249	*A2	1	#4	STR	29'-8"	20		
						*A3	2	#4	STR	16'-4"	22		
*B1	58	#5	STR	11'-2"	676	*A4	2	#4	STR	16'-10"	22		
B2	58	#6	STR	11'-8"	1016	*A5	2	#4	STR	17'-4"	23		
						*A6	2	#4	STR	17'-10"	24		
						*A7	2	#4	STR	18'-4"	24		
						*A8	2	#4	STR	18'-10"	25		
						*A9	2	#4	STR	19'-4"	26		
						*A10	2	#4	STR	19'-10"	26		
						*A11	2	#4	STR	20'-4"	27		
						*A12	2	#4	STR	20'-10"	28		
						*A13	2	#4	STR	21'-1"	28		
						A14	1	#4	STR	29'-2"	19		
						A15	1	#4	STR	29'-8"	20		
REINFORCING STEEL					LBS.	1265	A16	2	#4	STR	16'-3"	22	
*EPOXY COATED REINFORCING STEEL					LBS.	925	A17	2	#4	STR	16'-9"	22	
							A18	2	#4	STR	17'-3"	23	
							A19	2	#4	STR	17'-9"	24	
CLASS AA CONCRETE					C. Y.	15.5	A20	2	#4	STR	18'-3"	24	
							A21	2	#4	STR	18'-9"	25	
							A22	2	#4	STR	19'-2"	26	
							A23	2	#4	STR	19'-8"	26	
							A24	2	#4	STR	20'-2"	27	
							A25	2	#4	STR	20'-8"	28	
							A26	2	#4	STR	21'-2"	28	
							*B1	68	#5	STR	11'-2"	792	
							B2	68	#6	STR	11'-8"	1192	
							H1	8	#7	STR	36'-8"	600	
							H2	8	#4	STR	19'-3"	103	
							S1	37	#4	1	9'-6"	235	
							S2	74	#4	2	5'-1"	251	
							REINFORCING STEEL					LBS.	2695
							*EPOXY COATED REINFORCING STEEL					LBS.	1106
							CLASS AA CONCRETE BREAKDOWN						
							POUR 1 DEADMAN					C. Y.	16.5
							POUR 2 APPROACH SLAB					C. Y.	18.3
							TOTAL CLASS AA CONCRETE						34.8



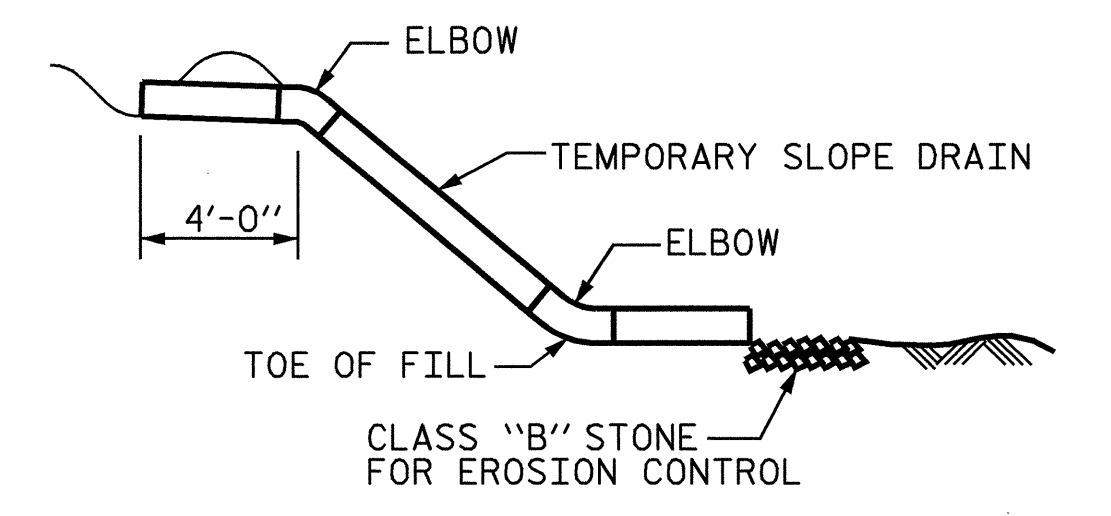
IF THE APPROACH SLAB IS NOT CONSTRUCTED IMMEDIATELY AFTER THE BACKFILLING OF THE END BENT EXCAVATION, GRADE TO DRAIN TO THE BOTTOM OF THE SLOPE AND PROVIDE EROSION RESISTANT MATERIAL, SUCH AS FIBERGLASS ROVING OR AS DIRECTED BY THE ENGINEER TO PREVENT SOIL EROSION AND TO PROTECT THE AREA ADJACENT TO THE STRUCTURE. THE CONTRACTOR WILL BE REQUIRED TO REMOVE THESE MATERIALS PRIOR TO CONSTRUCTION OF THE APPROACH SLAB.

TEMPORARY DRAINAGE DETAIL

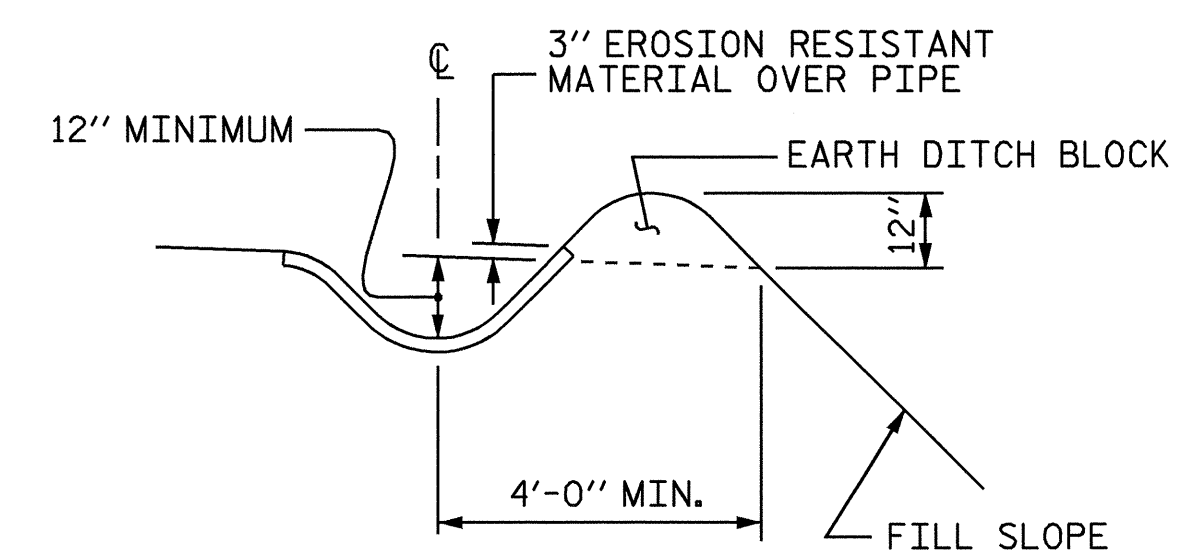


NOTE: IMMEDIATELY AFTER THE CONSTRUCTION OF THE APPROACH SLAB, THE CONTRACTOR SHALL PROVIDE TEMPORARY BERM AND SLOPE DRAIN. CONTRACTOR SHALL GRADE TO PIPE INLET AND PROVIDE EROSION RESISTANT MATERIAL AS SHOWN. THE EROSION RESISTANT MATERIAL SHALL BE EITHER 1) ASPHALT PLANT MIX, TYPE 1 OR TYPE 2, MIN. 2" DEPTH, 2) EROSION CONTROL MAT, OR 3) CONCRETE, AS DIRECTED BY THE ENGINEER. THE SLOPE DRAIN SHALL CONSIST OF A NON-PERFORATED TEMPORARY DRAINAGE PIPE, 12 INCHES IN DIAMETER.

PLAN VIEW



SECTION R-R



SECTION S-S

TEMPORARY BERM AND SLOPE DRAIN DETAILS

PROJECT NO. B-4446
 BUNCOMBE COUNTY
 STATION: 13+48.95 -L-

SHEET 3 OF 3

STATE OF NORTH CAROLINA
 DEPARTMENT OF TRANSPORTATION
 RALEIGH

BRIDGE APPROACH SLAB DETAILS

REVISIONS						SHEET NO.
NO.	BY:	DATE:	NO.	BY:	DATE:	S-20
1			3			TOTAL SHEETS 20
2			4			



ASSEMBLED BY :	M. POOLE	DATE :	08/09
CHECKED BY :	D. HODGE	DATE :	09/09
DRAWN BY :	FCJ	REV. 8/16/99	MAB/LES
CHECKED BY :	ARB	REV. 10/17/00	RWW/LES
		REV. 5/7/03	RWW/JTE

STANDARD NOTES

DESIGN DATA:

SPECIFICATIONS	-----	A.A.S.H.T.O. (CURRENT)
LIVE LOAD	-----	SEE PLANS
IMPACT ALLOWANCE	-----	SEE A.A.S.H.T.O.
STRESS IN EXTREME FIBER OF		
STRUCTURAL STEEL - AASHTO M270 GRADE 36	-	20,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50W	-	27,000 LBS. PER SQ. IN.
- AASHTO M270 GRADE 50	-	27,000 LBS. PER SQ. IN.
REINFORCING STEEL IN TENSION		
GRADE 60	---	24,000 LBS. PER SQ. IN.
CONCRETE IN COMPRESSION	-----	1,200 LBS. PER SQ. IN.
CONCRETE IN SHEAR	-----	SEE A.A.S.H.T.O.
STRUCTURAL TIMBER - TREATED OR		
UNTREATED - EXTREME FIBER STRESS	-----	1,800 LBS. PER SQ. IN.
COMPRESSION PERPENDICULAR TO GRAIN OF TIMBER	-----	375 LBS. PER SQ. IN.
EQUIVALENT FLUID PRESSURE OF EARTH	-----	30 LBS. PER CU. FT. (MINIMUM)

MATERIAL AND WORKMANSHIP:

EXCEPT AS MAY OTHERWISE BE SPECIFIED ON PLANS OR IN THE SPECIAL PROVISIONS, ALL MATERIAL AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2006 "STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES" OF THE N. C. DEPARTMENT OF TRANSPORTATION.

STEEL SHEET PILING FOR PERMANENT OR TEMPORARY APPLICATIONS SHALL BE HOT ROLLED.

CONCRETE:

UNLESS OTHERWISE REQUIRED ON PLANS, CLASS A CONCRETE SHALL BE USED FOR ALL PORTIONS OF ALL STRUCTURES WITH THE EXCEPTION THAT: CLASS AA CONCRETE SHALL BE USED IN BRIDGE SUPERSTRUCTURES, ABUTMENT BACKWALLS, AND APPROACH SLABS; AND CLASS B CONCRETE SHALL BE USED FOR SLOPE PROTECTION AND RIP RAP.

CONCRETE CHAMFERS:

UNLESS OTHERWISE NOTED ON THE PLANS, ALL EXPOSED CORNERS ON STRUCTURES SHALL BE CHAMFERED 3/4" WITH THE FOLLOWING EXCEPTIONS: TOP CORNERS OF CURBS MAY BE ROUNDED TO 1-1/2" RADIUS WHICH IS BUILT INTO CURB FORMS; CORNERS OF TRANSVERSE FLOOR EXPANSION JOINTS SHALL BE ROUNDED WITH A 1/4" FINISHING TOOL UNLESS OTHERWISE REQUIRED ON PLANS; AND CORNERS OF EXPANSION JOINTS IN THE ROADWAY FACES AND TOPS OF CURBS AND SIDEWALKS SHALL BE ROUNDED TO A 1/4" RADIUS WITH A FINISHING STONE OR TOOL UNLESS OTHERWISE REQUIRED ON PLANS.

DOWELS:

DOWELS WHEN INDICATED ON PLANS AS FOR CULVERT EXTENSIONS, SHALL BE EMBEDDED AT LEAST 12" INTO THE OLD CONCRETE AND GROUTED INTO PLACE WITH 1:2 CEMENT MORTAR.

ALLOWANCE FOR DEAD LOAD DEFLECTION, SETTLEMENT, ETC. IN CASTING SUPERSTRUCTURES:

BRIDGES SHALL BE BUILT ON THE GRADE OR VERTICAL CURVE SHOWN ON PLANS. SLABS, CURBS AND PARAPETS SHALL CONFORM TO THE GRADE OR CURVE. ALL DIMENSIONS WHICH ARE GIVEN IN SECTION AND ARE AFFECTED BY DEAD LOAD DEFLECTIONS ARE DIMENSIONS AT CENTER LINE OF BEARING UNLESS OTHERWISE NOTED ON PLANS. IN SETTING FORMS FOR STEEL BEAM BRIDGES AND PRESTRESSED CONCRETE GIRDER BRIDGES, ADJUSTMENTS SHALL BE MADE DUE TO THE DEAD LOAD DEFLECTIONS FOR THE ELEVATIONS SHOWN. WHERE BLOCKS ARE SHOWN OVER BEAMS FOR BUILDING UP TO THE SLAB, THE VERTICAL DIMENSIONS OF THE BLOCKS SHALL BE ADJUSTED BETWEEN BEARINGS TO COMPENSATE FOR DEAD LOAD DEFLECTIONS, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. WHERE BOTTOM OF SLAB IS IN LINE WITH BOTTOM OF TOP FLANGES, DEPTH OF SLAB BETWEEN BEARINGS SHALL BE ADJUSTED TO COMPENSATE FOR DEAD LOAD DEFLECTION, VERTICAL CURVE ORDINATE, AND ACTUAL BEAM CAMBER. IN SETTING FALSEWORK AND FORMS FOR REINFORCED CONCRETE SPANS, AN ALLOWANCE SHALL BE MADE FOR DEAD LOAD DEFLECTIONS, SETTLEMENT OF FALSEWORK, AND PERMANENT CAMBER WHICH SHALL BE PROVIDED FOR IN ADDITION TO THE ELEVATIONS SHOWN. AFTER REMOVAL OF THE FALSEWORK, THE FINISHED STRUCTURES SHALL CONFORM TO THE PROFILE AND ELEVATIONS SHOWN ON THE PLANS AND CONSTRUCTION ELEVATIONS FURNISHED BY THE ENGINEER. DETAILED DRAWINGS FOR FALSEWORK OR FORMS FOR BRIDGE SUPERSTRUCTURE AND ANY STRUCTURE OR PARTS OF A STRUCTURE AS NOTED ON THE PLANS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL BEFORE CONSTRUCTION OF THE FALSEWORK OR FORMS IS STARTED.

REINFORCING STEEL:

ALL REINFORCING STEEL SHALL BE DEFORMED. DIMENSIONS RELATIVE TO PLACEMENT OF REINFORCING ARE TO CENTERS OF BARS UNLESS OTHERWISE INDICATED IN THE PLANS. DIMENSIONS ON BAR DETAILS ARE TO CENTERS OF BARS OR ARE OUT TO OUT AS INDICATED ON PLANS. WIRE BAR SUPPORTS SHALL BE PROVIDED FOR REINFORCING STEEL WHERE INDICATED ON THE PLANS. WHEN BAR SUPPORT PIECES ARE PLACED IN CONTINUOUS LINES, THEY SHALL BE SO PLACED THAT THE ENDS OF THE SUPPORTING WIRES SHALL BE LAPPED TO LOCK LEGS ON ADJOINING PIECES.

STRUCTURAL STEEL:

AT THE CONTRACTOR'S OPTION, HE MAY SUBSTITUTE 7/8" Ø SHEAR STUDS FOR THE 3/4" Ø STUDS SPECIFIED ON THE PLANS. THIS SUBSTITUTION SHALL BE MADE AT THE RATE OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS, AND STUD SPACING CHANGES SHALL BE MADE AS NECESSARY TO PROVIDE THE SAME EQUIVALENT NUMBER OF 7/8" Ø STUDS ALONG THE BEAM AS SHOWN FOR 3/4" Ø STUDS BASED ON THE RATIO OF 3 - 7/8" Ø STUDS FOR 4 - 3/4" Ø STUDS. STUDS OF THE LENGTH SPECIFIED ON THE PLANS MUST BE PROVIDED. THE MAXIMUM SPACING SHALL BE 2'-0". EXCEPT AT THE INTERIOR SUPPORTS OF CONTINUOUS BEAMS WHERE THE COVER PLATE IS IN CONTACT WITH BEARING PLATE, THE CONTRACTOR MAY, AT HIS OPTION, SUBSTITUTE FOR THE COVER PLATES DESIGNATED ON THE PLANS COVER PLATES OF THE EQUIVALENT AREA PROVIDED THESE PLATES ARE AT LEAST 5/16" IN THICKNESS AND DO NOT EXCEED A WIDTH EQUAL TO THE FLANGE WIDTH LESS 2" OR A THICKNESS EQUAL TO 2 TIMES THE FLANGE THICKNESS. THE SIZE OF FILLET WELDS SHALL CONFORM TO THE REQUIREMENTS OF THE CURRENT ANSI/AASHTO/AWS "BRIDGE WELDING CODE". ELECTROSLAG WELDING WILL NOT BE PERMITTED. WITH THE SOLE EXCEPTION OF EDGES AT SURFACES WHICH BEAR ON OTHER SURFACES, ALL SHARP EDGES AND ENDS OF SHAPES AND PLATES SHALL BE SLIGHTLY ROUNDED BY SUITABLE MEANS TO A RADIUS OF APPROXIMATELY 1/16" INCH OR EQUIVALENT FLAT SURFACE AT A SUITABLE ANGLE PRIOR TO PAINTING, GALVANIZING, OR METALLIZING.

HANDRAILS AND POSTS:

METAL STANDARDS AND FACES OF THE CONCRETE END POSTS FOR THE METAL RAIL SHALL BE SET NORMAL TO THE GRADE OF THE CURB, UNLESS OTHERWISE SHOWN ON PLANS. THE METAL RAIL AND TOPS OF CONCRETE POSTS USED WITH THE ALUMINUM RAIL SHALL BE BUILT PARALLEL TO THE GRADE OF THE CURB. METAL HANDRAILS SHALL BE IN ACCORDANCE WITH THE PLANS. RAILS SHALL BE AS MANUFACTURED FOR BRIDGE RAILING. CASTINGS SHALL BE OF A UNIFORM APPEARANCE. FINIS AND OTHER DEFORMATIONS RESULTING FROM CASTING OR OTHERWISE SHALL BE REMOVED IN A MANNER SO THAT A UNIFORM COLORING OF THE COMPLETED CASTING SHALL BE OBTAINED. CASTINGS WITH DISCOLORATIONS OR OF NON-UNIFORM COLORING WILL NOT BE ACCEPTED. CERTIFIED MILL REPORTS ARE REQUIRED FOR METAL RAILS AND POSTS.

SPECIAL NOTES:

GENERALLY, IN CASE OF DISCREPANCY, THIS STANDARD SHEET OF NOTES SHALL GOVERN OVER THE SPECIFICATIONS, BUT THE REMAINDER OF THE PLANS SHALL GOVERN OVER NOTES HEREON, AND SPECIAL PROVISIONS SHALL GOVERN OVER ALL. SEE SPECIFICATIONS ARTICLE 105-4.

ENGLISH

JANUARY, 1990

STD. NO. SN